S
333.82
E120
1975

PLEASE RETURN

STATE DOCUMENTS COLLECTION
AUG 8 1979
MONTANA STATE LIBRARY
930 E Lyndale Ave.
Helena, Montana 59601

OVERSIGHT HEARING

on implementation of the

MONTANA STRIP MINING AND RECLAMATION ACT

(Sec. 50-1034 et seq., R.C.M., 1947)

April 4, 1975

MONTANA HOUSE OF REPRESENTATIVES

Natural Resources Committee

Dorothy M. Bradley (D-Bozeman), Ch.

William Day (D-Glendive)
Fred Fishbaugh (D-Carter)
Herb Huennekens (D-Billings)
Daniel Kemmis (D-Missoula)
Al Luebeck (D-Butte)
Peter M. Meloy (D-Helena)
James D. Moore (D-Kalispell)
Joseph Quilici (D-Butte)
Paul T. Richards (D-Helena)
Arthur H. Shelden (D-Libby)
Gail M. Stoltz (D-Valier)

John Anderson, Jr. (R-Alder)
Fred O. Barrett (R-Lewistown)
Orval S. Ellison (R-McLeod)
Jack Moore (R-Great Falls)
Elmer Schye (R-White Sulphur Springs)

Reprinted by the

MONTANA ENVIRONMENTAL QUALITY COUNCIL

John W. Reuss, Director

Capitol Station

Helena, Montana 59601

May, 1975

Montana State Library
3 0864 1006 7948 2

OVERSIGHT HEARING

on implementation of the

MONTANA STRIP MINING AND RECLAMATION ACT

(Sec. 50-1034 et seq., R.C.M., 1947)

April 4, 1975

MONTANA HOUSE OF REPRESENTATIVES

Natural Resources Committee

Dorothy M. Bradley (D-Bozeman), Ch.

William Day (D-Glendive)
Fred Fishbaugh (D-Carter)
Herb Huennekens (D-Billings)
Daniel Kemmis (D-Missoula)
Al Luebeck (D-Butte)
Peter M. Meloy (D-Helena)
James D. Moore (D-Kalispell)
Joseph Quilici (D-Butte)
Paul T. Richards (D-Helena)
Arthur H. Shelden (D-Libby)
Gail M. Stoltz (D-Valier)

John Anderson, Jr. (R-Alder)
Fred O. Barrett (R-Lewistown)
Orval S. Ellison (R-McLeod)
Jack Moore (R-Great Falls)
Elmer Schye (R-White Sulphur Springs)

Reprinted by the

MONTANA ENVIRONMENTAL QUALITY COUNCIL

John W. Reuss, Director

Capitol Station

Helena, Montana   59601

May, 1975

Table of Contents

Page

HEARING ANNOUNCEMENT.. iii

FORMAT FOR DISCUSSION.. iv

MEETING AGENDA.. v

LIST OF INVITED WITNESSES.. vii

TRANSCRIPT.. 1

PRELIMINARY REMARKS BY WITNESSES.. 1

COMMITTEE MEMBERS' QUESTIONS.. 12

WRITTEN COMMENTS SUBMITTED TO THE COMMITTEE.. 53

- Robert R. Bell, Economic Development Association............... 53
- James Posewitz, Montana Department of Fish and Game........... 55
- R. L. Hodder, Agricultural Experiment Station.................. 59
- Alten F. Grandt, Peabody Coal Company........................... 61
- Brian M. Sindelar, Agricultural Experiment Station............. 63
- Maxwell Botz, Montana Water Quality Bureau..................... 67
- Ralph E. Moore, Westmoreland Resources......................... 69
- M. J. Hassell, Program Manager Surface Environment and Mining (SEAM)............................ 75

The Big Sky Country

MONTANA STATE HOUSE OF REPRESENTATIVES

REP. DOROTHY BRADLEY
DISTRICT NO. 77
BOZEMAN, MONTANA 59715

COMMITTEES:
NATURAL RESOURCES, Chairman
BUSINESS and INDUSTRY

RECEIVED
MAY 1 - 1975

[redacted]

March 26, 1975

An oversight hearing on the implementation of Montana's Strip Mining and Reclamation Act is being held on Friday evening, April 4, 7:00 p.m., in the House Chamber in Helena. The hearing will be sponsored by the House Natural Resources Committee. Many representatives and senators feel that legislative responsibility goes beyond passing laws; it also includes reviewing the implementation and success of those laws. Since reclamation is one of the most important issues for the future, we have an obligation to the people of the state to monitor its progress.

You are invited to attend and participate in this hearing. If you are interested in offering testimony, please notify us by mail or by calling 449-3702 as soon as possible. We will ask each participant to give a concise statement concerning the area of his expertise and interest. Included is an outline of the format. We would like the testimony to keep within the perimeter of this format.

We expect to run the hearing in the following manner: introductory remarks will be made on the purpose of the hearing, statements from witnesses will be given, and then questions from committee members will be asked to specific participants. We would appreciate witnesses bringing a written copy of their opening statement. We also plan to record the whole hearing and put the material into a final report.

Sincerely,

Dorothy Bradley,
House Natural Resources Committee

Enclosure

DB/ns

FORMAT

Oversight Hearing on Montana's Strip Mining and Reclamation Act

I. Federal and State Laws
  A. Provisions of the Federal Act
  B. Comparison of State and Federal Provisions
  C. Question of the jurisdiction on federal lands
  D. Question of the jurisdiction on Indian lands

II. Reclamation of Western lands
  A. Progress in the reclamation of mined lands
    1. Reclamation progress in specific localities
    2. Outlook toward furure reclamation research

  B. The Montana Reclamation Statutes
    1. Adequacy and applicability of existing provisions and rules
    2. Possible needed amendments
    3. Administration of the statute
    4. Violations of the statute

HOUSE NATURAL RESOURCES COMMITTEE

Oversight Hearing on Montana's Strip Mining and Reclamation Act

April 4, 1975

Helena, Montana

I. The Montana Reclamation Statute

  A. Administration of the statute

    1. Personnel
    2. Mine inspections
    3. Adequacy of mining application information
    4. Enforcement

  B. Adequacy of existing provisions and rules

    1. Agricultural land protection
    2. Water resource protection
    3. Selective denial (Section 9)
    4. Burial of undesirable spoil materials
    5. Violations
    6. Bonding requirements

II. Reclamation of Western Lands

  A. Progress of reclaiming strip mined lands

    1. Native species vs. introduced species
    2. Fertilization
    3. Company research
    4. Burial of toxic substances
    5. Aquifer disruption
    6. Problems in specific localities

  B. Outlook toward future reclamation research

III. Federal and State Laws

  A. Provisions of the federal act

  B. Interface of state and federal authority

INVITED WITNESSES

Reclamation Oversight Hearing, April 4, 1975, Helena

Montana Government

Lieutenant Governor's Office

Lt. Gov. Bill Christiansen

Department of State Lands

Ted Schwinden, Commission of Lands
C. C. McCall, Reclamation Division Administrator
L. Dean Culwell, Strip Mining Bureau Chief
Sharon M. Solomon, Environmental Planner

Department of Fish and Game

James Posewitz, Environment and Information Division Administrator

Department of Health and Environmental Sciences

Maxwell K. Botz, P.E., Water Quality Bureau

Montana University System

University of Montana

Arnold Silverman, Professor, Department of Geology

Montana State University

Richard Hodder, Researcher, Agricultural Experiment Station
Frank F. Munshower, Reclamation Researcher, Animal Science Department
Carl Wambolt, Range Management Specialist, Cooperative Extension Service

Federal Government

Department of Interior

Denton Carlson, Land and Minerals Branch Chief, Bureau of Land Management

Private Agencies

Montana Coal Council

Patrick F. Hooks, Executive Director

INVITED WITNESSES (Continued)

Peabody Coal Company

Alten Grandt, Land and Reclamation Director
Gene Tuma, Conservation Director
Leonard Shearer, Western Division Area Engineer
Joe Lake, Western Division General Superintendent

Westmoreland resources

Ralph Moore, Operations Vice President

Western Energy Company

Arthur Neill, Senior Engineer
Mike Grende, Permit Supervisor
Roger Rice, Senior Exploration Geologist

Knife River Coal Company

Robert Rudio, Environmental Consultant and Geologist, Montana Testing Laboratories, Inc., Helena

Decker Coal Company

Jack F. Ratchye, Jr., Marketing and Resources Manager, Peter Kiewit Sons' Co.

Tri-County Ranchers Association

Marilyn Hayes, Member

Northern Plains Resource Council

Carolyn Alderson, Vice Chairperson
Jeannie Hjermstad, Staff Member

HOUSE NATURAL RESOURCES

OVERSIGHT HEARING

APRIL 4, 1975

The House Natural Resources Committee convened at 7:10 p.m. in the House Chambers with Chairman Dorothy Bradley presiding for an oversight hearing on Montana's Strip Mine and Reclamation Act.

CHAIRMAN DOROTHY BRADLEY Many of you have come a long distance to participate in the hearing with the House Natural Resources Committee this evening. The House Committee on Natural Resources decided that one of the most important issues before the state and before the legislature is the whole issue of strip mining and strip mine reclamation, and this is becoming increasingly important in view of the national energy picture and the increasing dependency on coal. We also felt that representatives in the state legislature are responsible in ways beyond just passing laws. We are also responsible for keeping an eye on the overall situation and monitoring the progress made under the laws that we have passed; and for that reason we called the hearing tonight and invited many different witnesses to come and participate and answer questions from our committee. The rules of the hearing tonight will be this: We would like each of the invited participants to start out by identifying himself explaining his area of expertise and his particular interest in this whole subject. I would request that you keep your opening comments brief as it is most important that we have ample time for committee questions. However, if you want to give further remarks you will have up to five minutes to do so. After all the participants have had a chance to introduce themselves, we will give the remaining time to questions from the committee members. I sent you a copy of the general format in the mail when I sent the invitation to come tonight. We have a more detailed copy of that format which I hope you have before you. If you haven't received one, there are some extras and we will get them to you. We will go through these categories as they are listed, in that order, and all committee members will have an opportunity to ask you questions in each of these categories as they are listed. I want you to be aware that we are recording the whole hearing. My intention is to try to have the hearing transcribed and to have it printed up; and I don't know at this time if that is possible. But that is my intention to try to do, and if it is possible to do that, then in that transcription we will also include statements that were sent to our committee one week prior to and one week after the night of this hearing from participants who were invited but for various reasons were unable to attend. I think that I will start by identifying the people who were asked and have you make your introductory comments, and we will start with Lieutenant Governor Bill Christiansen.

LIEUTENANT GOVERNOR BILL CHRISTIANSEN Thank you, Madam Chairperson, members of the committee. Very briefly, I am certainly pleased that the committee has taken the time to put together an overview hearing such as this is. To my knowledge it is the first in the legislative process. I might say that I am here as a very interested observer. I will be, of course, subject to the questions that the committee might see fit to ask me. May I say that as chairman of the Montana Energy Advisory Council we are asked and charged with looking into all energy related matters. I am pleased to say that we have a very good rapport with the ten departments of the Montana government that do make up this council--I think particularly those departments of State Land, Department of Natural Resources and Conservation and perhaps the Environmental Quality Council are the three departments with which we have the most rapport; but with all others including my friend, Mr. Posewitz and the Fish and Game Department, we certainly have a working relationship. I would call the attention of the committee to some research we have available. That is the datum on the research on the Matrix Board, which I am very pleased to share with you if you would come down to my office, in which we keep track as we find research going on at both the state and regional level. I know that research is most important to the discussions here tonight and with that I would invite you sometime to look and see what our office has in the line of documentation of research that is going on and has occurred in very recent years. Thank you, Madam Chairman.

CHAIRMAN BRADLEY Thank you. Second, Commissioner of State Lands, Ted Schwinden.

TED SCHWINDEN Chairman Bradley, members of the committee, to be most brief, as the Lieutenant Governor said, this apparently is a kind of milestone in legislative history in terms of an oversight hearing over the operation or implementation of specific pieces of legislation and particularly legislation as important to the present and future of Montana as the laws which deal with surface mining in this state. I couldn't help thinking in terms of oversight and the hindsight that the committee may gather as a result of the testimony tonight, that maybe the oversight was in putting it in the department in 1971 in the first place. I grew up in eastern Montana and I can remember a song they used to sing over there--something about never knew what lonesome was until I started herding cows; and I can tell the members of the committee and the members of the audience here this evening that I didn't know what problems were until we started regulating mining in the state. We have had four years experience--some good, some bad. I was ruffling through some old notes and, perhaps Chairman Bradley and Representative Shelden and some of the other members of the committee will remember when we were discussing the enactment of what is now Chapter 325, the Strip Mine Act, back in February 1973, I testified to a joint hearing of the Senate and House Natural Resources Committees, and I thought it was interesting in looking back, at that time my testimony basically read as follows. I said that the two years of experience that we had had at that time had led myself and the department to the following kinds of conclusions: First, that the state must have discretionary authority to, subject of course to administrative and judicial appeals, to prohibit mining where the adverse impact is too great and acceptable reclamation is impossible--325, of course, provides that.

In at least two instances we have utilized the selective denial provisions. I went on to say that the state must have the capability to regulate the method of mining. It was obvious, I think, to those of us who worked on that legislation and since, that the regulatory authority must have input into the methodology used in the mining of the mineral if you are to control and to be able to assure successful revegetation. I said that the bonding levels that are established where surface mining takes place must accurately reflect the cost of successful permanent reclamation. We have been given improved authority in that area and in checking out figures today on the some 8000 acres of land which has been permitted for coal mining, the department now holds approximately eleven and a half million dollars to assure the reclamation of those 8000 acres. I said as point 4 that the state must be enpowered to act quickly where operators are not in compliance and enforce adequate penalties. Previous to this meeting the committee members, I believe, have been given a list updated to about the first of this month of the penalties enforced under the Strip Mine and Reclamation Act. And then finally that citizens should be adequately protected from damages due to mining operations, and you are presently considering legislation in particular 349 which would buttress that authority. And I concluded my testimony in 1973 by saying that timidity in the regulatory area will inevitably result in repetition of our prior exploitative experience in Montana and that none of the people of this state would or could tolerate that result.

What we have attempted to do in the approximately four years of implementation of the various surface mining legislation is to try to find the middle ground between bureaucratic arrogance and administrative apathy. I am not sure that we have always been successful and I am sure that you will hear testimony tonight that we have erred in both directions.

I think all the members of the committee are totally aware of the fact that the success of any program that you implement and fund doesn't rest on people like myself. It rests upon the staff personnel who are the day after day working people who make these laws either work or fail. Despite a relatively high rate of turnover, I am sure that you are going to hear testimony from some of our former employees tonight, but despite that high rate of turnover I feel that I have been extremely fortunate in being able to attract to the department, even if only for a short time, some very able and dedicated people. I have all of the coal bureau staff here this evening which includes the administrator, Mr. McCall, our attorney, our environmental coordinator, and we have the chiefs of the two other bureaus in case questions come up in regard to sand, gravel, bentonite or the hard rock mining. I think the hearing was basically restricted to coal. If I could just take one moment in conclusion I would like to introduce these people, perhaps it will help the committee in their questioning later because if you have technical questions direct them there. I would like to introduce first, Mr. C. C. McCall who is the administrator of the Reclamation Division. Would you stand up please, C. C., stand up all the way. Mr. Dean Culwell who is the bureau chief of the Coal Bureau. Jack Schmidt, who is the new employee, is the hydrologist for the department. Mike Woods is the geologist. It is obvious that we are so shortly funded we don't even have enough money down there to buy a razor. Mr. Wilbur Criswell who is the chief of the

Hard Rock Bureau. Mr. Dick Juntunen who is the chief of sand, gravel, bentonite--what we call the Open Cut Bureau. Charles Van Hook who is primarily associated with Mr. Culwell in the Coal Bureau. Sharon Solomon who works in reclamation and who is also our Environmental Coordinator in the department, and Leo Berry, our departmental counsel. Did I catch everyone? I'm sorry. And Art Olsen who the department has been privileged to have on an intergovernmental loan from the Soil Conservation Service. His contract terminates at the end of this year. We will have had him for two years on loan from the Soil Conservation Service as a soil scientist. Thank you very much, Chairman Bradley.

CHAIRMAN BRADLEY Thank you. Jim Posewitz from the Department of Fish and Game.

JIM POSEWITZ Madam Chairman, members of the committee, the Montana Department of Fish and Game is responsible for the perpetuation of the fish and wildlife resource of the state both game and nongame species. In order to meet that responsibility it is our primary objective to preserve the habitat that produces fish and wildlife resources. In the pursuit of this objective we have actively participated in Montana's effort to regulate and reclaim land affected by surface mining. Today we respond to and comment on environmental impact statements; we serve as a designated member of the Montana Energy Advisory Council; and we respond to numerous requests for fish and wildlife information from governmental and nongovernmental agencies both. To meet the demands for fish and wildlife information we also conduct numerous coal and energy related investigations. A copy of the investigations currently underway by our department is attached to the back of our statement which I believe is available to the committee. And I would be hap to answer any questions we can regarding fish and wildlife and the effect of strip mining on that resource. Thank you.

CHAIRMAN BRADLEY Thank you. Max Botz, Department of Health and Environmental Sciences.

MAX BOTZ Madam Chairman, members of the committee, I am with the Water Quality Bureau, the Department of Health. We have the responsibility for water quality and water pollution control in Montana. Our agency is a member of the Montana Energy Advisory Council and we are involved in a number of energy related technical projects in southeastern Montana and eastern Montana. I'll be glad to answer any questions on our agency's responsibilities, activities or functions. My expertise is water quality, water pollution and hydrogeology. Some of the projects that we are currently involved in are: A grant from the Old West Regional Commission to study the impact of coal development on water quality in Montana, a review by our staff attorney. We are also involved in a study of the impact of coal development on the Tongue River. We have just been funded from the EPA for a study of the Poplar River to look at the impact of Canadian coal development just north of the Montana line. We are also planning to investigate intensively the active coal mining sites in eastern Montana to assess how our regulatory functions are achieving the water quality results in Montana that we desire. We have just completed two extensive water quality management plans that include the entire coal area of Montana. These plans will be available very shortly. And they describe the area resources, they describe the impact of developments in the area on our water resources and they also detail our strategy for maintaining water quality in this area. We also have an application in for a 208 area in Billings and also in the Miles City area. I would be glad to answer any questions. Thank you.

CHAIRMAN BRADLEY Denton Carlson from the Bureau of Land Management.

DENTON CARLSON Madam Chairman, members of the committee (the first part of Mr. Carlson's testimony was lost due to tape switching) ... started last year and we haven't any conclusive facts as yet but basically it is a program to determine the reclamation potential of the coal lands and the effects of coal development. Basically it is mapping the soils, the overburden, the coal, the substrata, looking at the ground water; collecting these samples; and the interpretation of this data then would be used to assess the reclamation potential prior to leasing it. Also in the preparation of site specific stipulations should leasing be permitted it would provide a baseline of data for the soils and such and would provide a means to monitor the changes that may occur on these resources during and after strip mining. I'll be glad to answer any questions that you may have with regard to this program. Thank you.

CHAIRMAN BRADLEY Thank you. Pat Hooks from the Montana Coal Council.

PAT HOOKS Madam Chairman, members of the committee, my name is Pat Hooks. I am a lawyer from Townsend, Montana, and I'm a lobbyist and director of the Montana Coal Council. This is a rather unique proceeding, and we frankly were in doubt exactly what you wished from industry and in a conversation with Miss Bradley this week she indicated that primarily you would be interested in people available to answer questions the committee might have. I might state that the companies I represent are the Coal Council who are producing coal in this state which are Peabody, Knife River and Westmoreland Resources. They along with the Decker Coal Company have all prepared statements for presentation tonight. Rather than read them into the record I think it perhaps would be more time saving to merely submit them to the committee, if that would meet with your approval, to save time for questions. And I would like to introduce the various people who are here from the various companies I've mentioned to respond to questions and I might ask them to stand as I call out their name. First from Knife River--Bob Rudio from Helena who is a consultant. From Westmoreland Resources--Mr. Ralph Moore of Hardin, Montana, who is vice-president in charge of operations. From Peabody--we have first Mr. Al Grandt, who is head of reclamation for the company; Mr. Leonard Shearer, chief of engineering, western division; Mr. Howard Williams, director of western surface operations; Mr. Larry Fochs, mine superintendent of the Big Sky Mine; Mr. Gene Tuma, reclamation supervisor of the Big Sky Mine; Mr. Kent Wilson of the law firm of Crowley, Kilbourne and Haughey of Billings who is here as counsel for Peabody. Also on behalf of Decker Coal Co., which isn't a member of the Montana Coal Council, I would like to present first Mr. Gene Phillips, an attorney for Pacific Power and Light, who is one of the partners; Mr. Ron Spahn of Sheridan, Wyoming, who is an attorney for Peter Kewitt, the other partner; Mr. Gary Robbins, soil scientist; Mr. Jack Reed, chief reclamation engineer of Decker. And all of these people will be responsive to any questions you have and we are prepared to submit our prepared statements now or at the conclusion of the hearing. I might say, Madam Chairman, that with respect to Decker we would likely present that when we have it finally typed--time didn't permit it today. Thank you.

CHAIRMAN BRADLEY Is there a representative from Western Energy here?

ROGER RICE Chairwoman Bradley, honored committee members, I am Roger Rice representing Western Energy Company, a wholly owned subsidiary of the Montana Power Company, with headquarters in Butte, Montana. I would like to introduce Mike Grende, reclamation manager for Western Energy, and Art Neill, senior engineer for Western Energy. We have been engaged since mid-1968 in the development and mining of coal, principally in Montana and Wyoming, and are currently producing coal at the Rosebud Mine at Colstrip, Montana.

We appreciate the opportunity to appear here tonight to present testimony on the "Montana Strip Mine and Reclamation Act". This is an appropriate time for an oversight hearing since we have been operating under the act for just over a year. While we believe that the intent of the act is necessary, we do feel that there are areas where modifications may be advisable.

For purposes of this testimony, we would like to address Paragraph II B of the hearing format.

The present permit system is cumbersome to administer and comply with and will become more complex and unwieldly as time progresses. Under the present system, permits are issued on an annual basis. Before the end of the first year, this original permit must be renewed plus another application submitted for the coming year's operations. During the third year of operation, the previous two permits must be renewed and a third submitted for the next year. You can see the compounding effect, because of the five-year obligation required under the act, twenty-five separate permits and renewals would be necessary for this one mining area. This further assumes that the original permit is released by the state after the first five years. If this is not the case, then the figure will be many times higher. We submit that an easier and more practical approach might be to permit a logical mining unit as defined in the federal register or extending the permit life. We would suggest either a five-year permit period to conform to the proposed federal strip mining act or a permit for the life of the logical mining unit. A logical mining unit would allow for the following: (1) A more effective valuation of the resources such as soils, vegetation, hydrology, wildlife. (2) A more efficient rate of coal production--it is important to keep the equipment which is available for the mining operation at full capacity as this ultimately will result in lower energy costs to the consumer. (3) It would permit more complete recovery of the coal resource than is possible under the annual system. (4) Better reclamation results could be achieved through improved land-use planning, such as drainage and final contouring to be compatible with agriculture, recreation, wildlife needs.

Section 50-1043 of the act allows the department to deny a permit or a portion of a permit where the land has exceptional, critical or unique characteristics. This section needs more clarification of the terminology to allow for better preplanning on the applicant's behalf. It is very costly to prepare and submit a mining plan. With the continuous change in personnel in the Land Department, we are faced with numerous changes in the interpretation of this section. This requires extensive modification of our permit applications.

Section 50-1056 of the act which relates to violations should be revised. A provision should be incorporated allowing emergency excursions outside of the boundaries. These may be required for safety reasons or because of conditions beyond the control of the operator. Violations have occurred because of misunderstandings or lack of clarification in the act. We submit that there should be some opportunity for review and correction of these situations before they reach the point where a violation is issued or a penalty assessed.

Thank you again for the opportunity to appear here, and we will be happy to answer any questions that you may have.

CHAIRMAN BRADLEY Thank you. Dr. Richard Hodder from the Agricultural Experiment Station at Montana State University.

DR. RICHARD HODDER My name is Mr. Richard L. Hodder. I am employed by the Montana Agricultural Experiment Station, Montana State University, Bozeman, Montana. My particular endeavors focus on disturbed land rehabilitation research, particularly on coal mined land reclamation. My comments will deal primarily with reclamation research progress and predictions in an attempt to place our reclamation problems in perspective so that a realistic appraisal of our land rehabilitation difficulties can be better evaluated. Until very recently, public effort, concern and emotion have centered so intensely on coal issues that few appreciate or comprehend the magnitude of our interrelated existing reclamation problems, not to mention major emerging new ones of staggering proportions.

Progress in reclamation research has proceeded at a pace which is extremely gratifying and well beyond general expectations of specialists in the field. Results of seedings, fertilizer effects, surface manipulation benefits, use of temporary stabilizing species, use of coarse buffer materials over clayey spoils and soil microbiology studies have worked sufficiently well to give credence to the rehabilitation program in the semiarid west. Experience with topsoiling has produced good results but much care must be applied to its use and the timing of its placement in order to gain the benefits that the process has to offer. Use of temporary stabilizing species may be the most feasible means of protecting topsoil and incorporating large quantities of organic material into the soil surface.

Research with temporary species, which are primarily cereal grains, has shown that with moderate fertilizing (50# N/A) and without irrigation, 30-40 bushel to the acre of barley may be expected the first year after reshaping. This production emphasizes a shortcoming of our present law in that it is, to my knowledge, the only reclamation law in the country which does not consider the spoils as a resource to be used toward its highest and most productive use. For instance, in 1975 productive dryland grain fields disturbed by mining which will have to be reverted to grass, according to the wording of Montana law.

Current research efforts are leaning on hydrological related problems of sedimentation and pollution of surface, subsurface and ground water. EPA funded demonstration projects at Colstrip, Savage and Beulah, North Dakota are designed to provide substantiating data on this subject.

Efforts using minimum tillage systems promise to conserve the equivalent of an additional inch of annual ppt under semiarid growing conditions. Soil water relationships and quality characteristics will be monitored with sophisticated instrumentation over several years to provide essential data. A SEAM funded project underway is intended to identify the effects of various fertilizers and application rates on response of individual native grass species.

Pasture fences are presently being constructed so that the first controlled grazing studies may take place on revegetated spoils this season. This project is a cooperative effort between local ranchers, Society for Range Management and the Montana Agricultural Experiment Station.

Some people are aware of the effort by the Montana Agricultural Experiment Station and Montana Tech in the reclamation of saline seep areas. Annual losses of crop productive dryland are estimated to exceed 15,000 acres, totaling more than 250,000 acres in Montana at this time, and increasing each year. Interstate highway construction, up to the current year, left approximately 2000 acres of roadsides and slopes to be reclaimed. Roadside stabilization represents the oldest current reclamation research effort of the Montana Agricultural Experiment Station. Bentonite mining has caused major disturbance and severe reclamation problems of a most difficult and trying character. Disturbed areas sorely needing reclamation from this source have exceeded 200 acres each year for an extended period of time and have been projected to double this year.

In contrast, strip mining for coal is predicted by the Department of State Lands to reach as much as 375 acres during the current year. Although this acreage is presently small, it has the potential for great growth.

The disturbance of coal mined lands represents only a portion of the total coal related rehabilitation problem. The greatest land disturbance will be caused by the extensive utility corridors essential for mining. Each mine site requires a road system, railroad and powerline. If we do not soon design a district mining plan incorporating parameters of space and time, then we will have chaos. Only by district sequential mining can one set of utilities, one railroad, one road system, one community, serve many mines over a long span of time such as one or two centuries. Only by promoting the district concept can we have realistic rehabilitation of mined lands, elimination of temporary haphazard disection of the countryside and longevity to reduce the socio-economic impact concerning service communities.

And now for a few projections: We in Montana are dependent on Canada for natural gas. It has been announced by the Canadian government, that gas exports may be terminated within five years. This means to me that Montana will in a near future have to switch to coal for heat, either directly or indirectly. This means increased mining and reclamation.

What is much more alarming is the fact that our country is rapidly changing. We are presently importing 80 percent of our natural resources from undeveloped countries at increasing rates. In the future the United States must become more self-sufficient and produce 80 percent of its natural resource needs, especially critical minerals.

There is a wide choice of where we may mine coal; critical minerals are a different story. The "Treasure State of Montana" and the "Gem State of Idaho" suggest that critical mineral mining will likely occur in major proportions within our boundaries. Current feverish activity in the mineralized areas suggest the time interval may be short. Obviously low grade ores will be involved thus indicating open pit as well as underground mining may be common. Reclamation responsibilities will be immense.

Concentration of low grade ores and refining of metals will require enormous amounts of energy from coal, either directly or indirectly, again increasing our obligations concerning reclamation of the hardrock areas of the western portions of the state as well as the coal region of the east.

The total reclamation needs of the present are staggering. Those of the future are inconceivable.

CHAIRMAN BRADLEY Dr. Arnold Silverman from the University of Montana.

DR. ARNOLD SILVERMAN I left a vita with the committee secretary expressing my long term interest in strip mine reclamation and mining laws in the state of Montana. Briefly, I would like to comment on a couple of points which bear on both the law and the administration of the Montana Strip Mine Act. I would like to congratulate the Department of State Lands for its diligent efforts to secure a personnel team to undertake the administration of this act, and I hope with the passage perhaps of a pay scale that will attract professionals to the state of Montana and keep them here that over the years Mr. Schwinden will be able to develop the kind of stable staff we all wish him to have. Briefly, I would like to suggest that for the last couple of years I've been very interested in the possibility of the Department of State Lands providing at each mining site in the state of Montana a strip mine reclamation and environmental inspector, whose full time job it will be to monitor the individual mining site in the state. It is my opinion that only through the availability of a full time mining inspector on the lands being mined will we be able to eliminate the violation of permits and the assessment of penalties that have been more or less around in the last couple of years. This system works well in Pennsylvannia where every mine including the smallest of the open pit mines has assigned to it a professional reclamation and environmental inspector with the ability, I might say, to close the mine on a moment's notice if violation of permit occurs. And I think that, with the indulgence of the State Land Board Commissioner, in applying for funds to the legislature to support such positions that the legislature ought to look very closely at such a request during the next session.

Secondly, I would like to say that a follow-on to my suggestion that state inspectors be assigned to individual mining properties is that we must once again reassess the adequacy of the size of the violation that we have in state law--violations from $100 to $1000 per day in operations that are mining 5 million tons a year or approximately 14 thousand tons of coal a day, with earnings in the order of $3 to $5 per ton of coal or net earnings per day in the order of $50,000 to $60,000 per day, for that mining company would not seem to have a high enough deterrent in a $100 per day fine; and I would think the legislature might wish to look again at the assessment of civil violations and fines with respect to application of permits.

Lastly, I would like to encourage the State Land Board and the legislature to fund the State Land Board to take a more active look and a more active leadership position in looking for and identifying lands, exclusions under the Strip Mine Act, that has been adequately defined in the section 9, subsection 2 (a), (b), (c), and (d). And I believe it is incumbent on the State Land Department to take an active role (with the financial support of the legislature) to identify, delineate, and bring to the legislature's attention and the public's attention those lands that they would not accept permits on rather than to respond to permit applications.

Let me say that in viewing the House and Senate versions of the Federal Strip Mine Act--I believe the only place where the state of Montana would benefit directly from the passage of that act, either with signing by the President or over the President's veto, would be in the alluvial plain exclusion if the House and Senate conferees can agree to that exclusion that is now in the House version of the bill--the point is that su an exclusion was not passed apparently by, or one with much teeth to it was not passed by, this session of the Montana legislature. Madam Chairman, I would be glad to answer any questions with regard to this statement.

CHAIRMAN BRADLEY   Thank you, Dr. Wambolt, Range Management at MSU.

DR. CARL WAMBOLT   Madam Chairman, committee members, as you have stated I am with range management with the Cooperative Extension Service at MSU, therefore my interest lies specifically with the revegitation aspects of strip mining. I have not prepared a formal statement, I am here solely to help answer questions if I can. Thank you.

CHAIRMAN BRADLEY   Marilyn Hayes from the Tri-County Ranchers Association

MARILYN HAYES   I am Mrs. Art Hayes, Jr., from Birney, Montana, and I am here for the Tri-County Ranchers Association of Bighorn County-- Big Horn County, Rosebud and Powder River County. And we are concerned about the enforcement of this law, specifically the provisions providing for the burial of toxic wastes and anything that has to do with water.

CHAIRMAN BRADLEY   Northern Plains Resource Council

CAROLYN ALDERSON Madam Chairman, members of the committee, I am Carolyn Alderson, or Mrs. Erv Alderson, Jr., and I am vice-chairman of the Northern Plains Resource Council and I am also a member of the Tri-County Ranchers Association. I come from Birney, Montana. Our organization as you are well aware is made up of many citizens' groups around the state of Montana primarily concerned with coal and coal related developments as it affects agriculture--ranching and farming--in the area. Our particular area, the Decker-Birney area, is very much slated and eyed by various companies and the federal government for development, and so we are extremely concerned with all the aspects of the Strip Mine Reclamation Law.

I am not a scientist and I would like to introduce the staff member of the Northern Plains Resource Council and the Tri-County Ranchers Association, Miss Jean Hjernstad, who is a bit more expert on some of the specifics. I wish to say that I think that it is a very good thing for this committee to hold this hearing to review the progress of the 1973 Strip Mining Act. I have heard it said that the law reflects the work of the environmentalists who want to make the country exactly the same as it was before. As one citizen who watched apprehensively and diligently the progress of drafting and the debate and compromise of this act, I think I can safely say that the law reflects hours of work and faith in technology and the understanding of what should be done to make reclamation successful--including such things as the burial of toxic wastes under specific amounts of nuetral material, and we are extremely concerned with what happens to our ground water and our surface water. And as ranchers I think we are particularly apprehensive about the eventual success or failure of reclamation because our livelihood depends upon it, and we do hope the law shall not be weakened in any way. I don't think we are here to discuss what should be done to the law in particular, I think we are here to discuss its difficulties and successes. I would say as far as we are concerned if any changes should be made it is in an area of emphasis.

I think it is laudable of the state departments to accept the responsibility for administering and making the decisions. However, I think that the burden of proof should be on the companies wishing to mine to demonstrate that they can do the reclamation that they say they can do prior to mining. And I think the state should continue to adopt a go slow approach and wait and see if the land will sustain grazing; because after all if it will hold up grass in a broad community of native species, then you can do anything you want with it including farm it. But you can't very often depend on farming the land and putting annual species in and fertilizing it forever and eventually having to release it--taking a chance of nothing growing after that.

And I also wish to say that we look to this committee to uphold its responsibility to make sure the law is properly enforced.

Thank you and I will be willing to answer any questions.

CHAIRMAN BRADLEY Thank you. Dr. Frank Munshower from the Department of Reclamation and Research at Montana State University (pause) Evidently, he was unable to make it. Is there anyone here who received an invitation that I have not called upon. If not then we will start in on the committee's questions. I hope you have copies of the format before you, the more detailed version which we printed up today. I'd like to go briefly through the main topics and they are as follows: Number 1--the Montana Reclamation Statute--and we will be discussing administration of the statute and adequacy of existing provisions and rules. Second the topic of-- Reclamation of Western Lands--and under that topic progress of reclaiming strip mined lands and outlook towards future reclamtion research. The third topic is--Federal and State Laws--and the interface of state and federal authority. So we will start on that first topic and I would like members of the committee to just come forward and use this mike and ask questions to the witnesses who are here tonight. The first topic is--Administration of the Statute. This will cover such matters as personnel, mine inspections, the adequacy of mining application information, enforcement and anything else the committee wishes to pursue.

REP. PAUL RICHARDS The best thing about having us all congested up here is that none of us can reach the mike. Ted Schwinden, we had the doctor from Missoula address the mine inspections and what he would like to see, and I was hoping you could give us a brief overview of what presently is taking place on mine inspections from the department.

TED SCHWINDEN I am not exactly sure how detailed you want, Rep. Richards, and C. C. will have to correct me if I am wrong. I believe in the summary that we did for the budget committee, and this includes all of our reclamation responsibilities for the three acts, we reached approximately 50% of what we felt was an ideal inspection schedule. That involved inspection of coal operations once every two weeks (twice a month--that's about the same); such things as small miner exclusions once a year. I don't know whether the committee got a copy of our list of reclamation personnel. I guess they did. I really take exception to the suggestion that was made by one of the witnesses in regard to a full time inspector. I guess I was surprised. One of the things that we have deliberately sought not to do and this was on the advice of reclamation administrators that the lieutenant governor and I visited with in the midwest and eastern states. They said never assign one guy full time to a mine because the possibilities of a unique relationship developing is there. I can see some advantages in terms of enforcement but if this does happen I think it has to be accompanied by many more sets of eyes on the site all the time. I think you are thinking about a full time guy assigned all the time.

DR. ARNOLD SILVERMAN Yes, I certainly am, Mr. Schwinden, and I think that the man at that site is working for the state of Montana and I think that obviously the integrity of the individual would lead him to perform his duties in the best interests of the state of Montana, and I think that that would be imperative obviously in anyone assigned to a mine site. But I am talking about a full time inspector on the site, day-in, day-out, 365 days a year, relief for holidays and vacations.

TED SCHWINDEN Well, I guess I would reiterate I think the conviction Mr. McCall and I both share that you do have to have more than one individual looking at mines in order to insure the integrity of the inspection system. We try to send people of different areas of expertise because there as so many problems that arise at a mine site. They may range all the way from hydrology to geology to revegitation problems.

I think we have been able to adhere in the coal mining area pretty religiously for the last seven or eight months to a twice a month inspection schedule. We have at least one person and it is usually two who are on the mine site making an inspection report which is filed with the department here in Helena. Is that a satisfactory answer, Paul? In terms of frequency of inspection--we do try to mix all the time--one time it might be Art Olson and Mike Woods, the next time it could very well be Mr. Culwell and Steve, or something like that.

CHAIRMAN BRADLEY I would like to pursue that just a little bit more. Who decides what the ideal frequency would be and if that ideal isn't reached then what problems could result?

TED SCHWINDEN I guess there is no way to argue that the ideal is a situation which was referred to which is daily visitation in order to maximize the total compliance with the act. What we have tried to do is deal realistically with the personnel that you see listed here--fifteen or sixteen, some of them secretarial, of course, and not field personnel and spread them as well as we can over the total responsibility that the department has, and in terms of physical numbers, of course, there are far more mines which are covered under the Open Cut Act and under the Hard Rock Act than there are under the Coal Act--just in terms of numbers--although because of the size and the public concern and so forth we do put the highest frequency of inspection on the coal mining companies. But it is an administrative decision to utilize your personnel in terms of who you have, how often their wives are willing to let them be on the road, and a whole host of problems. But you can only spread fifteen people over these fifty-six counties so often and that is what it comes down to.

REP. JIM MOORE Ted, when you do these on site inspections, are these announced or unannounced?

TED SCHWINDEN Normally unannounced.

CHAIRMAN BRADLEY Just one more question on the inspections. Now in the next two years if more permits are granted and the work load increases, what happens then? Do you foresee any serious problems? You will obviously have to keep inspecting the ones that already exist and so the load accumulates to a greater degree, and do you think this is a serious problem in the next two years?

TED SCHWINDEN Perhaps I should ask Mr. McCall to address this because he lives with this problem daily. There are many variables. I just asked Mr. Culwell the other day. One of the problems is that there have been perhaps two basic enforcement kind of problems under this act in the last year or so. One was a very rapid build up in the amount of prospecting activities which are also covered under this act, and prospecting activities are very time consuming in terms of personnel because the law requires an on site inspection of each site and we have companies which cover as many as thirteen counties and literally hundreds of holes. Just physically this takes a lot of time. If we have a slack year in prospecting this allows more time to look at the active coal mines. The other problem, and this I guess relates to the comments of Mr. Rice, is that I think we have 23 actual applications for permits and that would not include amendments, is that right? That does include amendments to permits. You get this accumulation--you are working on the renewal and a new application and in some cases, I think the committee also has lists of this, there have been numerous amendments sought during the year and each one of those is virtually like a new application; and it depends upon how many of those you get because applications require in-house examination of documents. We brought along this evening--I don't know, it might have some dramatic impact on the committee--I asked Mr. Culwell to bring the information which is submitted by a company with one application to mine. And I thought it might be some indication of the kinds of in-house work you have to do here in analyzing the various kinds of over burden analysis and so forth. I don't know, maybe you could just--we just literally get drowned with paper work and this pulls people out of the field, of course. That does not include the environmental assessment--that is just the application information although some of it will be duplicated.

REP. FRED FISHBAUGH I have several questions for Dr. Hodder from the State Experiment Station. Have you been working with experimental plots on Western Energy reclamation down there, Doctor?

DR. RICHARD HODDER Yes, I have.

REP. FRED FISHBAUGH With any other coal companies?

DR. HODDER Yes sir, we work with Decker Coal, Western Energy, Peabody, Consolidation Coal at its test pit in Roundup, Knife River Coal at its site at Savage--I guess that is most of it.

REP. FRED FISHBAUGH Do you receive any funding from these companies to help in this process?

DR. HODDER Yes, we do. What we receive from a private industry, oil companies as well as coal companies, provides us with our stable source of income. We are now getting some federal funding but this, although it is considerable in amount, I don't consider it the constant source of funding such as our private money is.

REP. FRED FISHBAUGH Would you have any idea how long it will take to determine just which species of grasses will be most suitable for these reclamation plots?

DR. HODDER That is difficult to answer because one would have to qualify it. We have a wealth of history as to the performance of a number of introduced grasses. We do not have the same kind of information on native grasses. We know that the introduced grasses have been selected and used for many years of time, many generations of time, because of their quick response and so forth. Native grasses typically are much slower to develop, so in answer to your question you really have to qualify it.

REP. FRED FISHBAUGH I have one more question. Do you irrigate any of your tracts down there?

DR. HODDER We are not presently irrigating anything. We have irrigated one field temporarily, which is what we call the demonstratic plot of Western Energy where we demonstrated the use of a thick buffer layer on top of a coarse texture buffer layer on top of a clay spoils in order to absorb moisture which ordinarily would have run off. This was the first demonstration where we used a layer of material to do the job that surface manipulation work was doing previous to that. It was quite succsssful. This plot was planted in May of 1972 and that spring was very, very dry. We delayed a whole month in seeding it, finally we went ahead with irrigating it to gain establishment, and this was irrigated for a short period of time before the spring rains came and it was discontinued. This was the only irrigating that has been done. (Some inaudible)

REP. FRED FISHBAUGH Thank you, Doctor.

REP. JIM MOORE (inaudible) Ted, is there a way and a provision of the act--can you get variances or waivers if you find that any of the provisions of the act can't be met? I am not as familiar with the act as I should be, and I'll admit that right off the top, but I don't see any.

TED SCHWINDEN There is a provision for alternative reclamation plans. I forget the section which provides that the operator may submit alternative plans of high wall reduction and so forth. Let me grab it here--right, in section 11 "An operator may propose alternative plans other than back filling, grading,highwall reduction, top soiling if the restoration will be consistent with the purpose of this act", and then it provides the procedure for submission to the department; and I think this would fall under what you are talking about as a variance or a waiver.

REP. JIM MOORE Yes, now that would still require coming under the purposes of this act?

TED SCHWINDEN Right.

REP. JIM MOORE I have a number of questions relating to I guess the Decker situation. It is my understanding that there is a high sodium content in the soil in that area. Is that right?

TED SCHWINDEN At this point I am going to turn you over to someone who can recognize sodium when they read it in a report. Dean, do you want to take it or C.C.?

C. C. McCALL The question was is there a considerable amount of sodium, was that it?

REP. JIM MOORE Yes.

C. C. McCALL There is sodium present, right, to a considerable amount.

REP. JIM MOORE Is it more so than with the other areas of development of the state?

C. C. McCALL We have some other mines with sodium problems and those areas have been analyzed, recommendations received from the staff in discussions with the miners themselves and outside experts, and decisions made on burial of some of these areas if they are determined to be undesirable.

REP. JIM MOORE Now, has the department tested this soil themselves or is this report--you said something about outside experts or independent experts on this . . .

C. C. McCALL Right, we work continually as we think we have a good rapport with the university systems of the state and the various experts at the research stations. We solicit their opinions freely and they have been very cooperative. We have not specifically from a department standpoint tested the spoils of any particular mine. The information is supplied us through the environmental resource analysis by the companies themselves either from their own staffs or by consulting out to consultants in the field. They supply us the information.

REP. JIM MOORE OK, with respect then to the Decker project did you in addition to the information which would have come in through normal channels solicit the opinion of some of the university experts?

C. C. McCALL Yes, we did. From a chronilogical standpoint we received the first set of overburden analysis and requested a second set to clarify some zones that we thought needed further clarification. We got the second set hoping it would solidify and point the way toward the proper spoils placement. They did not substantiate the first set of findings. They didn't correlate so we couldn't draw conclusions so we felt we must get a third set of overburden analysis to try to find the way to clear up the problem and make correct administrative and technical decisions. So we had a third set of overburden analysis run and had the samples split up from three core locations into three separate samples and we sent them to, had them sent, to two separate labs and the mine themselves ran analysis. So we got results from three labs on the very same materials. So that is basically the history of what we have done to date.

REP. JIM MOORE Now who took the samples, did the . . .

C. C. McCALL The coal company personnel took the samples at the direction of our experts in the soil area.

REP. JIM MOORE Your people where they on hand for the taking of the samples?

C. C. McCALL Periodically, not as a hundred percent rule, but occasionally we were on the site observing what was going on but we were not there all of the time.

REP. JIM MOORE Could I have a comment from somebody in the Tri-County Ranchers organization about the sodium situation in the Decker development.

MARILYN HAYES We understand that the Decker Coal Company doesn't anticipate any problem there as far as their sodium reclamation but then when other reports from different soil analyses come in we begin to wonder and worry. So we have asked the State Lands if they couldn't come up with an independent study of soil analysis. So far we haven't heard what they do intend to do. Since the Birney-Decker area, maybe everybody is familiar with the study--I don't know that you are--but it has been the only place in southeastern Montana that has been extensively studied any bit at all and we kind of feel that we are under the gun as far as any imminent development for coal.

REP. JIM MOORE Either Dr. Silverman or Dr. Hodder, are either of you familiar with that particular project and the mineral problems? Mr. Wambolt

DR. CARL WAMBOLT I believe I am familiar. Isn't this the data you sent to me C.C.? Yes, I guess I am. At the time I received this data I was not sure where it came from or what area it related to but obviously upon scanning it you could become suspicious; and I'm not quite sure what you want me to answer here, but for the most part the samples were quite high in exchangeable sodium. High enough that it appeared that if they were left near the surface these materials would be real detrimental to revegitation prospects.

REP. JIM MOORE Would you say they were at a level of toxicity that under section 10 (where they are referring to burial of toxic substances determined to be acid producing, toxic, undesirable or creating a hazard) that you believe the level was something that required special consideration?

DR. WAMBOLT Well, I'm trying to think back, but technically to me sodium is not necessarily toxic to plant growth. It is more a mechanical or physical problem with the soil. It dispurses the soil materials and you have crusting and so forth, and leads to many problems with revegitation. For the most part the samples are definitely of the nature that you would hope that you could bury adequately so that they would have no influence on the topsoil where you are doing your revegitation work. I do recall that something that bothered me at the time I reviewed this material, the samples were broken down on the basis of linear increments, depth increments, and the first increment was 0 to 10 feet and to me this is much too great an increment to look at by itself, because I would think in many situations you will encounter difficulties in the first ten feet of materials. I would have said that the genetic horizons of that area, of the soil in that area, should have been examined separately. Perhaps they were but I didn't have access to that information. I'm quite sure that I'm safe in saying, though, that the general sodium levels that appeared in those samples would be very detrimental to revegitation efforts.

REP. JIM MOORE Thank you. Mr. Schwinden, has the problem come up in this area that you see in the department?

TED SCHWINDEN Has the problem come up?

REP. JIM MOORE Well, is there a problem as to whether a permit should be issued or not, or whether there should be mining in this area, or whether the content is high enough or whether the results would be undesirable enough, or whether in terms of toxicity or crusting to require the deep burial under section 10?

TED SCHWINDEN OK, first of all, I think for clarification I should point out to you, Rep. Moore, and to all the other members of the committee, that there is a question on every application and the department does not automatically accept every application as a guarantee of a permit issuance. Each one requires a statutory and regulatory analysis before the issuance. The department has certainly recognized a potential problem in regard to the high sodium absorption ratios in the Decker-Birney area.

The repetition of the sampling, the splitting of the samples because we are kicking up these high SAR values, I guess is indicative of our concern. We have had the Decker Company in, which happens to be the active operator in that site. They have been doing some greenhouse testing. One of their soil scientists is here, Mr. Robbins. They were in the department, I think, most of one whole afternoon or maybe most of a day, I sat in for about two hours of it. So there is certainly a recognition on the part of the department. We received correspondence from the Tri-County Ranchers Association which was addressed not only to us but also to members of the board. Subsequent to that they had suggested and I had discussed with them the possibility of securing outside independent professional expertise. Mr. McCall, I think, wrote fifteen or sixteen letters to which he received replies, one of them obviously from Dr. Wambolt, soliciting their advice. Next Thursday Mr. McCall, Mr. Culwell and Mr. Olsen are going down to Mandan to meet with some of their program people there in their research station. They have done a fair amount of work in this area and were one of the respondents to our letters. I guess on the face of it that indicates the department does consider that the high SAR values pose some tough decision making on the permit.

REP. JIM MOORE Mr. Schwinden, if you run into a situation such as this where you believe that some outside analysis and opinion would be helpful does the department have any way of funding such an outside analysis.

TED SCHWINDEN Well, we have several alternatives, Rep. Moore. We have recently submitted to, and I hope I'm right, Old West SEAM and one other agency, Bureau of Mines, applications for grants not only for this problem but for delineation of the selective denial criteria and some bentonite problems which were mentioned earlier. So we do have. The department is allowed by its appropriation to utilize those funds which it receives in terms of fines, fees and penalties on our earmarked reclamation account. Those are running pretty well this year. So those funds are available if they are not utilized for other purposes of the department. Otherwise there really are no general funds as such in our present budget.

REP. JIM MOORE Mr. Posewitz, how does information relating to reclamation and say specific mineral problems, for instance where you would have leeching into a watershed, how does that information get to you or does it get to you, and what procedures do you have set up to insure that you have all the information that you need to protect the aquatic life in the streams of the area where you have a project?

MR. POSEWITZ Initially, we participate in the environmental impact statement review. I think now it is specific that when we get into a water quality problem we would rely on Mr. Botz here of the Department of Health to identify these potential problems. Now it becomes rather a complex thing once they get into a flowing water, say into the Tongue River or the Tongue River Reservoir, to actually document a change in the system. In order to monitor that system we are like State Lands--soliciting funds from a wide variety of sources to establish base line data. The problem is, I think, that we would have to admit that should leeching from a reclaimed site become a problem in the stream, I don't know how we would go about reversing the process after the land is mined and reclaimed. If you had a leech problem by the time we would identify it I would say it would be most difficult to rectify. So what we are doing right now is relying on the Water Quality Bureau, say for the water quality work; we rely on the impact statement process to try to give a clue as to where a problem might develop; and then as I mentioned we are out soliciting funds from a wide variety of sources to conduct the baseline monitoring. In the Tongue River we are doing fairly well now with money from Old West and money from EPA--that is a tenuous thing and you just hustle it from year to year as best you can.

MR. JIM MOORE OK, I would just like to address one last question both to Mr. Posewitz and Mr. Botz. Do you believe that you have sufficient front end information from environmental impact statements and sufficient participation or input into reclamation plans to be able to prevent the problems like you just mentioned, Mr. Posewitz, or after the fact reclamation leeching?

MR. POSEWITZ I would say right now that it is such a speculative area--that it is very difficult for us to for example speculate based on soil samples, and chemical constituents, and rainfall, and a variety of things, plus the diluting capacity of the receiving stream to predict impact for the fisheries or the aquatic invertebrate community which is about where our department really begins participating, to take a position for denial and defend that position.

MR. BOTZ Our agency has a number of things that we do to look into the problem of the impact of a waste discharge on the water resources both surface water and ground water. Now we have a permit program in which all dischargers in the state of Montana that discharge to waters of the state must have a permit for that discharge, this includes the mining companies and specifically the Decker Mine. The permit has conditions associated with probably the most germane conditions that could be associated with the quality and quantity of the water that they dispose of. We also have, of course, the regulatory framework of our state water quality standards with which we monitor the streams in the area to see if these standards are being violated. We also have the so called self monitoring provision in our permit standards. In this provision the mining companies themselves do quality and quantity work on their effluence. We also have technical investigations that are underway that will include the problem of impact of water effluence on the streams. As far as how we interface with Mr. Schwinden, I would say that our relationship is very good. I just spent the entire morning interfacing over at Mr. Schwinden's shop, and he is specifically preparing some guidelines that will be useful in his operation and they are very much involved in water quality, and I think that I could say that we are very much involved in assisting them in preparing these. Although all these things certainly sound as though we have a firm grip on the problem, as a hydrogeologist and in reviewing the problems of mines I think that there is certainly a possibility of some long term very extensive damage to both surface water and ground water resources at these mines. I think the technology of hydrogeology as it applies to understanding these problems is certainly not well advanced. I think that the thing we would like to do as an agency is to independently review and independently examine each one of these mining properties to insure ourselves that the particular problems that may occur associated with mining are evaluated in what we consider to be a technically competent manner. I think that the over-all, long-range impact of mining, particularly on ground water is just frankly unknown at this time. I think there is a possibility of massive (inaudible) water and I think there is a possibility of massive degradation. On the other hand, I also think there is possibilities for carefully controlling this degradation by the careful use of both the land reclamation technology and the hydrological technology that is being developed. I think that I would have to say at this point in time I would neither be an optimist nor a pessimist as to the impact on water quality--mining on water quality. I think right now the basic constraint that we have in our function is funding.

REP. WILLIAM DAY Mr. Schwinden, what is the Land Department policy on water protection, especially ground water protection as far as issuing strip mine permits?

TED SCHWINDEN (Inaudible) than I do, Mr. Day. We have, of course, the basic statutory and regulatory requirements which are set forth in compliance with Montana water quality standards, and so forth. C.C. do you or . .

C. C. McCALL Would you repeat the question again, Rep. Day?

REP. WILLIAM DAY I said what is the department's policy on water protection in issuing strip mine permits?

C. C. McCall The law basically calls for that they provide information on wells that surround the mines so that we may be aware of these locations and able to contact the ranchers and farmers. We are developing as Mr. Botz said hydrologic guidelines to provide the miners with information so that they might supply the Land Department, specifically the reclamation division, with monitoring efforts or hydrologic information prior to mining--that is supplied along with their application material--so that we might observe the situation before hand to know the volume flows that are entering the mining aquifer areas and that we might be able to hopefully predict or forecast what might happen as a result of aquifer disruption, and hopefully be able to plan or look at the alternatives of mining that would do the least damage. I don't believe anyone could argue the fact that there would be no disruption and no damage. But there probably are mining methods or alternatives that would minimize those damages.

REP. WILLIAM DAY What problems, if any, are occurring in ground water quality at this time? Do you have any data that you are polluting ground water from strip mines?

C. C. McCALL Yes, we have some information that has been provided for us by the Bureau of Mines, a Wayne Van Vost, who is studying specifically the Decker situation, and there has been some hydrology information coming in regarding Western Energy and Peabody. Specifically at the Decker site (end of tape two and what is in brackets are from shorthand notes) [there is definitely some damage to ground water but to what extent or how significant we don't know].

REP. WILLIAM DAY [To what degree will polluted ground water affect streams?]

C. C. McCALL Regarding the mines full of waters--it all relates to its close proximity to streams, how big a stream is, how much volume flows in the stream. If it is a small stream and there is significant underground water pollution input into the stream, it wouldn't take much before it would damage the quality of the small stream. If it is a larger stream it could handle much more polluted ground water. It depends on its close proximity to streams. When mining occurs very near to streams there is very little room for the dilution effect, and there is usually a quite strong discharge from ground waters into the stream areas. These are some thoughts.

REP. WILLIAM DAY I would like to refer the question to either Mr. Phillips or the Coal Council. If you are polluting an underground aquifer in your area, at what level will these have to be polluted before you will stop mining? Will you mine as long as the state will allow you to mine or will you stop on your own?

GENE PHILLIPS That's like asking me if you're going to stop beating your wife, I guess. I really think, Rep. Day, I would like to refer that question to our soils man from the Decker coal mine who is present today. He could probably discuss it in a more technical fashion than I could.

REP. WILLIAM DAY That would be fine.

GARY ROBBINS I might take exception to the statement that we are polluting the ground waters. We are not appreciably changing the quality of the ground water that we are dealing with, and in many cases this same ground water is discharging into the Tongue River naturally, in natural springs anyway. The ground water is more mineralized than the Tongue River but we aren't changing it by the mining process.

REP. WILLIAM DAY In other words, if it is more mineralized you are still not polluting it. Is that right?

GARY ROBBINS It is mineralized in its natural state. If you sample water in the wells in the area, you will find they are mineralized to equal degrees as the mine water is.

REP. WILLIAM DAY Then the Lands Department is wrong when they say that you are polluting water from strip mining, is that correct?

GARY ROBBINS We don't feel that there are grounds for a statement to that effect, no.

REP. WILLIAM DAY Mrs. Hayes, you expressed some concern about the ground and surface water in the Decker area. Would you like to comment on that?

MARILYN HAYES That really is the most important part and we are concerned about the increased mineral in the water. We are concerned about the increased mineralization of the water. We would prefer to have an independent study as to the effects of this mineral on the water because all this area drains into the Tongue River. We depend on it downstream for irrigation. I don't know what effects this mineral can have on irrigation of the productive land. It seems to me there is a section 9 2a that requires a strip mine not be approved where the mining would adversely effect the use of neighboring productive land. I would also like to say the Tongue River bisects the Birney-Decker area and in the low development projection there were six new mines projected and it goes up to twelve. All these mines would drain into Tongue River and unless this law is enforced now and not glossed over what is going to happen when eventually all these mines will be in production.

REP. WILLIAM DAY I would like to ask Mr. Schwinden--do you think a comprehensive ground water study would be beneficial at this time to compile data?

TED SCHWINDEN I think I can rely on Max. I think he is generally recognized as one of the most capable people in the state. He has indicated that he intends to do exactly that and we would only welcome it, Rep. Day. I don't think that is a question of independence it is just some basic data that you need in order to make those kinds of real tough decisions. Like Mr. Botz I'm neither an optimist or a pessimist. Unfortunately each year we are faced with decisions on whether to grant a permit based on in some cases a lack of all the total information you would like to have; plus we are also required to do some predicting based on the expertise of our staff as to whether or not seeds will grow, rain will fall, you know, waters will be damaged--and a lot of those are conjectural. You simply take the best professional expertise you have and make some guesses, I guess, educated guesses on what is going to happen. I don't think C.C. mentioned that we have four mines which have fairly extensive monitoring wells on their peripheries and we intend to put some into the reclaimed or regraded areas once they are reconstituted, and this will certainly give us some information as the mining proceeds. I don't think there is any question, Rep. Day, that that is the very kind of data that we need.

REP. WILLIAM DAY There was a gentleman from Western Energy that indicated the selective denial section of the law needed some clarification. Would you like to comment on what clarification you think the law would need? What seems to be the problem with it?

TED SCHWINDEN Well, I suppose the problem originates with the fact that we applied the provision to Western Energy--I imagine that is where it originated. There are some problems. We sought a year ago to get some funding because if you read section 9 it is easy to recognize that in the selective denial section which includes four subparagraphs the language is subjective. I think the committee is familiar with it. It says land should be selective denied if it has exceptional characteristics--it mentions biological productivity and ecological fragility and these are pretty subjective terms. And we feel at some point in time, pragmatically, that the department is going to selectively deny an area proposed for mining and a company is going to resist that selection; and we felt ever since the passage of this act that it is incumbent on the department to attempt to quantify some of those subjective values and that is not an easy thing to do. And we have just recently resubmitted to the US Bureau of Mines and Mr. Kompasky, who was here, a grant application to put some people to work trying to find some ways that you can identify in terms of some sort of a point scale, or grading scale, when ecological fragility has reached a point that you must deny the area--because I think eventually the department is going to wind up in court when we deny an operator the right to get to a mineral. I don't think there is any question about that--it is just a matter of time. And I think that my concerns are somewhat different than Mr. Rice's. Our concern is that when we deny we want the courts to uphold our decision, and we feel that we have to have a sound defensible selective denial system when we make those kinds of judgments.

REP. WILLIAM DAY Do you feel that under the present law that you have the authority and the proper wording of the law to prevent altering stream channels?

TED SCHWINDEN If not under that section, I would think that under section 4 or subparagraph 4 which reads that "if the department finds that the operation will constitute a hazard to a stream or lake" implicit in that is the concept that we could deny a company the right to get into that stream or lake because--well, I guess, unless they wanted to argue that it wasn't a hazard. I think this would be our basic position, wouldn't it Leo?

REP. WILLIAM DAY What is a stream under the law?

TED SCHWINDEN Well, under the law it is just S T R E A M and that's all it is.

REP. WILLIAM DAY Then how would you determine just what a stream is?

TED SCHWINDEN Well, I guess in many ways, Mr. Day, and I don't mean to be facetious, but I suppose a stream could be anything from what it says on a map, you know Johnson Creek--that's a stream even if there is no stream there except for three months of the year. That's a possibility. If the coal company wanted to resist that interpretation they will take us to court where such things are decided. It would ultimately be, I suspect, a judicial determination of whether we would come up with a proper definition of a stream. I don't think there is any question that the Yellowstone River is a stream. So somewhere in between there is something the court would probably uphold as the department's determination.

REP. WILLIAM DAY Do you feel the law needs some clarification on this?

TED SCHWINDEN In so far as mining the stream channels?

REP. WILLIAM DAY Yes

TED SCHWINDEN I have no objection to this. It might be helpful.

REP. WILLIAM DAY I think that is all my questions. Thank you very much.

CHAIRMAN BRADLEY Just to keep some kind of order going in this I want to ask the committee members if they have any specific questions left on administration of the statute. OK why don't we try to finish up that topic and go on to the next one.

REP. HERB HUENNEKENS Madam Chairman, I would like to ask Mr. Schwinden a few questions. Ted, the first item is personnel. I would like to relate what we folks have been doing over here in the chamber with what goes on in your shop. Yesterday we passed the classification and pay scale. My observation has been when in a horse race what really counts is the quality of the horse; and I have a hunch that as far as enforcing the provisions of the various statutes you are dealing with, the quality of your people is going to be very important. Have you found that under the new classification and pay scale you have been able to place your people adequately to insure that you get the best possible people for the job you have.

TED SCHWINDEN Well, Mr. Huennekens, I really don't know how to answer that. I guess it is up to the individual staff members. I tried to point out at the onset of this hearing that I feel the list of personnel that you have before you represents an excellent people. As you can see they range all the way from a PhD, with several people with a masters and a bachelors degree. We have, I think these people in most cases came to the department with two ambitions in mind--you have to have enough money to support the family--but most of them, perhaps all of them, brought a sense of dedication which obviously in many cases supplanted some dollars of income.

REP. HERB HUENNEKENS Well, can I pursue that then. One of the reasons that has been mentioned in connection with the need for a classification scale is that with this sort of thing we avoid pirating between departments. That has been a problem. Do you feel that your people will not be tempted perhaps by Fish and Game, or Department of Natural Resources, or the EQC?

TED SCHWINDEN You sure mention the temptresses. I hope that is the case. I think there are some of our people who feel there still are some disparities, which I imagine always happens when you get a new system developed in a fairly short time. The classification system is certainly going to lead to some dramatic improvement in the salary schedules of our entire department including the reclamation personnel, and I would hope that what you call pirating or proselytizing of people from one department to another will be minimized, although the reputation of good people always spreads through government and someone is always trying to offer them a better deal. That is just a fact of life.

REP. HERB HUENNEKENS Pursuing it a little further--were we able to provide you with a classification system which would allow you to cope with the problem of loosing people to the federal services?

TED SCHWINDEN No way. I don't know whether the federal government, if they enact a surface mine act, is going to be in here; but there is no question, Mr. Huennekens, that the federal pay scale compared to the state is the difference between day and night.

REP. HERB HUENNEKENS OK, I'll go a bit further. Your people are going to have to cope with some very capable people hired by the private companies that you are required to supervise and do you feel that the pay scale we provided you with will allow you to hire the sort of people you will need. It is kind of a friendly adversary situation that you are in with companies--have we provided you with the pay scale that will allow you to get the sort of people you need?

TED SCHWINDEN I certainly hope so, Mr. Huennekens, because what I felt was an inadequate pay scale allowed me to attract the people that I now have, and I will just totally defend them in terms of their capabilities. I'm not familiar with industry pay scales. There are three people here this evening on the other side of the room (which has no symbolism whatsoever) who formerly worked with this department--all of them now are in the private sector. But that is a decision that they made and I can only wish them well. Some people prefer to work in the private sector over the state; and I don't think it is a matter of salary, it is a matter of personal preference.

REP. HERB HUENNEKENS Thank you, Mr. Schwinden. Madam Chairman, I would like to reach into my own background as a meteorologist and hydrologist and throw a loaded question at some of the folks in the audience who deal with reclamation. Has anyone in the audience who does deal with reclamation problems ever heard of the Brookner cycle? The Brookner Cycle. Now I am talking climatology and I am leading into something. One of the questions I have here deals with the question of the bonding period. At this time we are dealing with the five year period and I want to make a point. The Brookner cycle is a precipitation cycle that is general all over the world--it consists of a 33 year cycle that breaks down into three 11 year cycles. I would gather than nobody has done sufficient research in Montana climatology among the experts to be aware that the 11 year subcycle does exist in Montana precipitation records and is very easily discernible. Now, the point I am going to make right now is that a five year bonding period is not adequate because if the five year period we are dealing with happens to be during the moist aspect of the cycle the reclamation process is going to show results that will not hold up as time progresses. I guess the point I am making is that perhaps people in reclamation should be a little more thorough in their research. Thank you, Madam Chairman.

REP. JIM MOORE Ted, I have three more for you. I don't mean to pick you out but I guess you are a natural since you are charged with the responsibility for administering this act. Very candidly have any of the coal companies operating in the state of Montana at the present time threatened to close existing operations if pending permits weren't granted?

TED SCHWINDEN Pardon, I didn't hear the last part of it.

REP. JIM MOORE Have any of the coal companies threatened to close existing operations or to cease Montana operations if pending applications were not granted?

TED SCHWINDEN Notto any of my recollection.

REP. JIM MOORE I think something that would have to worry us all is that, I recognize that the act says that in the event that successful reclamation is going to be difficult or impossible that you should not grant a permit, if a permit is in fact granted and the coal company invests millions of dollars in an operation and suddenly it becomes obvious to everybody that revegitation or reclamation is not working and is not going to work--will you be able at that point to close down that operation once there is millions of dollars invested?

TED SCHWINDEN I will answer just as honestly as I can--it wouldn't bother me a damn bit!

REP. JIM MOORE Great! Has section 9, subsection 2, relating to exceptional, critical, unique land values come into play in any application or permit to date?

TED SCHWINDEN Twice.

REP. JIM MOORE Twice, and what were those examples?

TED SCHWINDNEN One is an approximate thirty odd acres, as I recall, area in the Western Energy application, which I am sure they would testify cost them a bundle because we denied them access to what we felt was a critical area in order to get to some coal which they subsequently had to go around the end, make an end run, to mine. The other one was in the Westmoreland application on Sarpy Creek. It did not happen to involve minerals. It was in a draw which our staff felt had unique characteristics. It was intended to be used for a spoils disposal area and we denied their use for that purpose. But that did not involve the loss of mineral itself.

REP. JIM MOORE OK, subsection d under subparagraph 2 relates to scenic, historical, archaeological, topographical, geological, ethnological, scientific, cultural or recreational significance and needless to say after conversations today about the trust concept I can't resist tossing you the question of how you mesh this with the obligation you are charged with under that subsection with the dollar and cents interpretation that you give the Montana public trust constitutional provision.

TED SCHWINDEN I am sure that is a concern that is shared by many peopl It has been raised in some of our public forums in the eastern part of the state and I think it is a very valid kind of query to be placed on the department. I would point out that the Supreme Court in an issue totally unrelated to coal mining but dealing with the very issue you are talking about, Thompson ex el Babcock cited by the Supreme Court in 1966, held that the Board of Land Commissioners, which is a constitutional authority to administer that trust, may manage it. It has wide discretion in its managerial capability and that what it should look to is not speculative short term income but the long term return to the trust--and that, Mr. Moore, is the best answer I have.

CHAIRMAN BRADLEY I have a couple of questions for Dean Culwell. You showed us the bundle of information that you receive in the applications. I was wondering in looking these over if you have found the information is relatively complete, and has time been allowed for you to thoroughly review the information that was presented.

DEAN CULWELL The completeness of the applications varies considerably. Most of the applications that we have been getting lately are fairly complete. It is very difficult for a company to submit or try and predict exactly what supplementary information we will require and invariably we do require supplementary information; and it is a question whether the supplementary information should be considered as part of the completeness of an application.

CHAIRMAN BRADLEY Do you ever grant the permits before the 240 days of the review period, or do you feel that there have been pressures to grant the permit before that review period is over?

DEAN CULWELL We have granted most of the permits before the 240 day review period ended and, yes, there have been some pressures.

CHAIRMAN BRADLEY Would you care to elaborate?

DEAN CULWELL It is a very difficult question to answer. Some of the information we have not received--we have considered the type of information that we can request after a permit is issued--it either clarifies information that was submitted previously or we can predict that even after submitting it it would not have a significant bearing on denying a permit.

CHAIRMAN BRADLEY Do you have any way of double checking the information that is presented to you?

DEAN CULWELL We do. It is fairly limited. I think our professional people take the time, although probably not as much as we would like to see, to go out and check some of the information particularly on soils, vegitation, wildlife--this sort of thing.

CHAIRMAN BRADLEY Let me refer this same line of questioning to Leo Barry. Are there cases in which permits are granted when the information has not been presented which is required by statute or by administrative rule?

LEO BARRY I would hate to ever say "yes" to that question. Dean could tell you more. I'm not an expert in what all the information we obtain means. But we try to limit and I try to encourage the staff not to grant a permit, or to be sure to get more information if they need it, and we have tried to emphasize this over and over to both our staff and to the companies never to grant a permit if the requirements of the act aren't met. We try to limit our information and, I think, so far successfully to supplemental information like Dean says clarifies the permit in some regard. To my knowledge we do not grant a permit if there is some glaring lack of information in the application, no.

CHAIRMAN BRADLEY I would like to ask one further question on this of C. C. McCall. As I see it the situation that you have then is a vast amount of information being presented from the applicant and this seems to me distinctly different from the other situation that we have under the Utility Siting Act where a filing fee is required and that fee goes to bring in that same kind of information from an independent source. Now would you just offer a few comments on those two different systems--one having independent information obtained to back up the departmental decision and the other having information presented from the applicant. Do you think this is something that should be changed in the future?

C. C. McCall We haven't worked with the financial arrangement as is portrayed in the Utility Siting Act. Very definitely if that approach were to be used we would have to have more people, of course, because it would require us to let contracts, and set the terms of the contracts, and discuss the research and the environmental surveys in great detail with the consulting firms. We would have to write the specs in other words. And with our present staff, of course, we would not have time to do that. It would, I believe, the information obtained hopefully would not be challenged or tainted. Not that the information we have received has been, but we have found discrepancies in some of the information that has been obtained. For instance, regarding the condition of the range and the vegetation prior to stripping, we have received information that we have not agreed with, and have challenged the validity of it, and even went back to the source and the people that obtained the information, the researchers--and there was indeed an error, or misinterpretation in the presentation to the division by the company or the consulting firm hired by the company. I think you would remove some shadow of doubt on the validity of the information. We do have a very limited ability to check the accuracy and the validity of the information that is obtained and so it would have its advantages, but it would require a much larger staff for us to be able to write the specs and correlate it ourselves.

REP. PAUL RICHARDS I hear we are trying to wrap up the administration topic--a very quick question. Ted again. On penalties--we heard testimony that perhaps they weren't sufficient and, of course, you have the power of revocation of their license but my question is on some of the penalties that you have imposed. It is sort of the same situation that we have in Washington, D.C.--penalizing Exxon Oil $5000 for illegal campaign practices--that sort of thing is a very small drop in the bucket. I was hoping you could give us some idea of whether you feel these penalty provisions are enough or whether you would ask for more stringent, more strong, more higher financial penalties of the violating companies.

TED SCHWINDEN Well, first of all, I doubt that there is a company here that would not be the first to admit that it is not the size of the dollars of the penalty which bothers them most, it is the publicity. And I think as an elected official you recognize that there are areas of sensitivity. You know it is far worse to get caught with a minor infraction if you are in the public limelight--the fine doesn't matter that much but the headline in the paper does hurt. I think in almost every case they would admit, in perhaps all cases, it is the publicity that is killing them rather than the amount of the dollars. One of the pieces of legislation which was considered at this time, which we thought would have been very helpful, at least in the one regard, was a clarification of the issue of willfulness--it is a very tough problem because there should be a burden of proof on the department to show that there is an intent there to do wrong. One of the helpful additions would have been the inclusion under willfulness of a written order of the department and we had intended to sort of formalize this like an order of noncompliance to issue a written order directing XYZ company to perform a certain action within thirty days. If they failed to perform this would be a prima facia evidence of willfulness. As far as the actual amount of dollars, I guess they could be higher. They range up to $5000, I think, in the criminal section. Isn't it $1000 to $5000 a day and each violation is considered a separate day under section 21?

REP. PAUL RICHARDS And then one further thing on the monetary point of view--perhaps you could help us on this. How is it allowable for a company to deduct up to $12,500 for their reclamation per acre and then only spend around $4,000? I don't understand the discrepancies here between what the companies do deduct and what they actually spend, and I was hoping you could help us with that.

TED SCHWINDEN You must be talking about the credit against net proceeds.

REP. PAUL RICHARDS Yes.

LT. GOV. BILL CHRISTIANSEN Perhaps, Rep. Richards, you are referring to a deduction request of one of the companies that did in terms of acres disturbed did result in that kind of a computation. I prepared that document. If you'll look at that document it'll indicate that that is a computation based on the total acres disturbed during the life of the project for that year. I guess the life for that year is not quite a crisp statement. But anyway there is a discrepancy and I think the department of revenue, in the spirit of fairness, is looking to that discrepancy. Many companies have told us and in the past have indicated, and in fact very specifically the spoils that were reclaimed (1100 acres, I think it is--or at least a 1000 by the Burlington Northern railroad)--I had it on good authority--that they indicated about a cost of $700 for contouring and for preparing the surface and in fact the total reclamation cost. I think that Westmoreland has shared with me the fact that their reclamation because of increased costs that have hit government and everything else in the inflationary eras are now around $1200. The highest figure that I know of is around $1500 by any of the competing companies in the state of Montana. It is impossible for me to reconcile those costs as presented by one of the companies for tax reduction purposes. I think they are being audited or will be very shortly.

REP. PAUL RICHARDS Thank you very much. If I can refer that end to one of the companies in mention. Mr. Tuma. Would you care to answer how they can deduct over $12,000 in their reclamation costs when the average costs for these mentioned, Burlington Northern and Western Energy reclamation, were $700 per acre?

GENE TUMA I don't happen to be a tax man, I'm a bush man--I just plant things. I suggest that you talk with either our attorney or our other reclamation man here on these things. I think that our situation is somewhat unique.

REP. PAUL RICHARDS I would be happy if you would answer it, please.

KENT WILSON Rep. Richards, I am here as counsel for Peabody Coal and apparently the matter is going to be subject to audit and we would like to withhold any comments until the audit is completed.

REP. PAUL RICHARDS Thank you very much.

PAT HOOKS Rep. Richards, Pat Hooks with the Coal Council. I would just like to point out to you that under both SB 13 and HB 115 net proceeds becomes a thing of the past. So for purposes of looking to the future, if there is a problem here it will be eliminated in the future because reclamation costs will no longer be deductible in computing gross proceeds.

REP. PAUL RICHARDS Thank you, Mr. Hooks. We were talking of the administration of the act and one other question for Mr. Tuma if I could. I was hoping you could explain. You have been subject to the publicity that Mr. Schwinden mentioned perhaps more than any other company operating in the state. Do you have problems with these deadlines?

GENE TUMA Obviously we have had problems in the past; we hope not to have any in the future.

REP. PAUL RICHARDS So you see no recommendations that you would like for us to consider. I was just wondering if you could explain why you have had such delinquent filings on your tax returns and planning reports.

GENE TUMA Again, I don't know anything about the tax end of the thing. It was purely an oversight on my part on the planting report. I'm buried in quite a paper world.

REP. PAUL RICHARDS Thank you.

CHAIRMAN BRADLEY Are there any other committee questions on the topic of the adequacy of existing provisions and rules?

REP. HERB HUENNEKENS Dick, we all have a copy of the article in the Independent Record which discussed your opinion that the regulations should allow reclamation to include the production of small grains, and I noticed in several of the statements this same point was made. Have you had experience with grain crop production on reclaimed soil--spoils of various sorts--extending through 4, 5 or 6 years.

DR. RICHARD HODDER Our first experience with grain was seeded in the fall of 1970, on the very first spoils available to us for research studies and this was at the time when Western Energy finished mining the exposed coal that they had that was exposed for many years, and they started moving overburden to expose new coal. That fall we planted Cheyenne winter wheat as a species to reflect the productivity of topsoil as compared with subsoil as compared with raw spoils. The Cheyenne winter wheat that was planted on topsoil produced the best; that on subsoil, as I recall, produced next best; that on raw spoils produced third best. We mulched some of these treatments. The treatment that had stubble straw as a mulch, the raw spoils with the stubble mulch, produced equally as well as the topsoil; and this produced approximately thirty bushels to the acre of Cheyenne winter wheat. This was not cropped, however. Just before the grain matured we had a very severe hail storm which leveled the whole field. But it had been estimated to produce about thirty bushels to the acre.

REP. HERB HUENNEKENS Do you have any experimental results, though, where you have continuously cropped over a period of 3, 4 or 5 years?

DR. RICHARD HODDER On the same grounds?

REP. HERB HUENNEKENS Yes.

DR. RICHARD HODDER No sir, we do not. We hope to have this in the near future. As I indicated in my statement we will be carrying on minimum tillage on stabilizers, which are generally grains, and we'll have this information, I hope, relatively soon.

REP. HERB HUENNEKENS Basically at the present time you do not have a history of continuous cropping or alternate fallow type cropping with or without fertilizers so you can actually compare the results you would get on reclaimed spoil as compared to similar normal grain ground in the same area?

DR. RICHARD HODDER That's right, and the reason is because our purpose has not been to produce crops. The use of the grains has been for temporary stabilization use. It has been an annual affair and has not been repeated year after year on the same site.

REP. HERB HUENNEKENS Your conclusions then, if you are quoted correctly in this article, would seem to me to be a little premature.

DR. RICHARD HODDER Can you read what you are speaking of there?

REP. HERB HUENNEKENS Mentions throughout recommending that the law (this is the article from the Independent Record--I'm sure you've read it. The implication is quite clear here that we should change the regulations to include the possibility of reclamation meaning putting the reclaimed land into a situation where you can grow grain as opposed to growing native grasses.

DR. RICHARD HODDER My feeling is we should change the regulations in several respects and the law in at least one. The law I believe should be changed to allow us to use the spoils as a resource for its best and most productive use. We cannot do that at the present time.

REP. HERB HUENNEKENS As yet you have not proved, however, that you can grow grain essentially to the same degree or better, in other words, as you would on native soil in the neighborhood. You are proposing, if I read you correctly, that the coal companies be allowed to go through a process of trying to reclaim into cropland and if that doesn't work then to try to return to native grass or introduced grasses. Do you then propose that the bond be not released throughout the entire period of fooling around.

DR. RICHARD HODDER No sir, I think that it is only realistic to assume that all of the lands that are disturbed should not be put back into grass or native grains. There are many opportunities involved in reclamation which are not being taken advantage of in Montana because at the present they are not allowed. Now what I am saying in a sense is--if a mine is located within a large ranch operation, the purpose of the reclamation in the first place should be designed to eliminate some of the limiting factors involved in the operation of that ranch--so that in the end the purpose will be far more worthwhile than just developing more grass.

REP. HERB HUENNEKENS OK, thank you.

REP. JIM MOORE Dr. Botz, have you brought any actions at all under the Strip Mine Reclamation Act or in conjunction with the Strip Mine Reclamation Act for degredation of water?

MAX BOTZ We have no authority to bring any type of a remedial action under the Strip Mine Reclamation Act.

REP. JIM MOORE OK, under the Water Quality Acts that are on the books right now have you brought any actions against any of the companies engaged in strip mining or reclamation?

MAX BOTZ I am not directly involved in the enforcement function of our bureau. To my knowledge we have not but I would have to look into this with the enforcement people that we have.

REP. JIM MOORE You don't have any of your enforcement people here?

MAX BOTZ No, I have none.

REP. JIM MOORE Dr. Gordon, from your observations do you foresee any enforcement difficulties in so far as water quality with the Strip Mine Reclamation act?

DR. CLANCY GORDON I think there will be quite a bit of difficulties especially after the mines are in full operation. I think that the history of Montana shows that there has been degredation by many large industries after they have gone on to line, and very few have been fined or brought to court over this violation.

REP. JIM MOORE Do you foresee any specific threat to water quality that is going to flow specifically from strip mining activities?

DR. GORDON I think this has already been answered. I think it is very difficult to tell. I think it will be a slow, insidious build-up, and that the baseline data should have been gathered prior to any mining in the area of Montana. It's like any type of baseline data--after an operation is going on then you have pollution already occurring so when you measure baseline you're actually measuring a polluted area. This happens in many areas of the United States, such as around the TVA power plant. They measure after their power plant is already on line. They measure baseline in clean areas--but there are already power plants within a hundred mile radius of that power plant. It is very difficult to know what baseline is in a polluted area. I think in eastern Montana--in many areas--we already have pollution there.

REP. JIM MOORE Have baseline studies been done, Dr. Botz, in the major watersheds of coal development?

MAX BOTZ Yes, we have baseline water quality studies in all the major watersheds of coal development.

REP. JIM MOORE OK, and these preceded the development?

MAX BOTZ Some of the studies have preceded development, some have been concurrent with development, and some have been after the development has occurred. Basically our studies are either concurrent with or after the existing coal developments that are in the area now.

REP. JIM MOORE I have one more question that I would address to either one of you. I know that one of our major water degredation problems from an enforcement standpoint is difficult because it is seasonal and it seems to occur during a spring high water run-off, and I know that some of the industries have experienced overflowing of settling ponds and so on during this period--and in regard to the period it is generally uncontrollable and the water quality laws tend not to be enforced during this period. And with respect to strip mining and reclamation do you foresee any specific problems during high water periods of the year?

MAX BOTZ Your question is during periods of high water do we expect any problems with reclamation or with the run-off or pollution from strip mines.

REP. JIM MOORE Right, and enforcement of the acts during those periods.

MAX BOTZ Well, I would say that during the high run-off period that you do have associated with any strip mine, just as with any construction project, an increase in sedimentation. To my knowledge there has been no violations of our water quality standards associated with run-off from these strip mines. I must say we do not have a very good net of monitoring for this pollution. We at this time are increasing our net in this area. The reclamation laws administered by Mr. Schwinden are quite explicit as to the routing of waters around these mines, and they are quite explicit as to the handling of the waters associated with these mines. We only have two discharging mines in Montana and both these are under a permit condition and to my knowledge they have not violated water quality standards.

REP. JIM MOORE Mr. Schwinden, do you take into consideration the various seasonal problems in granting or denying a permit or in monitoring under this act?

TED SCHWINDEN I don't know that I can adequately answer that. As Max pointed out we use interceptor ditches above the mine area to divert the water around it. Where those mines have water on the mine site, because of interrupting an aquifer, we use in effect settling ponds so that the ultimate discharge meets the water quality standards; and I'll have to defer, I guess, to someone who knows more about the on-site situation than I do.

REP. JIM MOORE Whoever takes it--I'd like to know if to date there has been any difficulty with the approach that you have taken with the interceptor-settling pond approach.

JACK SCHMIDT I'll try to answer this. I've been with the department but a month. With the discharging mine that I am most familiar with which is Decker to date they have been submitting to us water quality data on their effluence once a month based on including with that a discharge measurement taken at the time that the sample is taken. Decker is now changing their monitoring system and is putting in a flume which will give us a continuous record of the discharge of their effluence into the Tongue River so that from this point on, and I was informed that they are in the process of putting that flume in, we will have a continuous record of how much water they are putting in for all periods of the day; and using that and correlating that with water quality samples taken at different discharge periods we will have a much more accurate measure of what the quality and quantity of the effluence are.

REP. JIM MOORE OK, and again these are samples submitted by Decker?

JACK SCHMIDT To date we have not collected any samples. I personally collected water samples a week and a half ago with an individual from the water quality bureau to be analyzed by the water quality lab. As far as I know that was the first time that we have collected any samples ourselves. To date Decker collects it. Someone at their mine collects it and they take it down to the Big Horn Mine in Wyoming where the chemical analyses are done.

REP. JIM MOORE OK, thank you. Dr. Gordon, in connection with the discussion on preservation of water quality and the specific problem areas which we spent the last four or five minutes on do you have any specific suggestions with respect to changes in the present law or changes in the present administration of the law which might insure that water quality would be kept at the highest possible level in connection with the Strip Mining and Reclamation Act.

DR. GORDON If it is possible it might be good to do all split samples where if the Decker mine collects the water it is split in half and half of it sent to the water quality bureau in the Department of Health and Environmental Sciences so they could make a check; and maybe not every single time there is a collection but at least at a rather common period of time or a close period of time like every week or every two weeks.

REP. JIM MOORE From the standpoint of feasibility and I would address this to one of the gentlemen from the coal companies--is there any alternative to the interceptor ditch-the settling ponds approach you are now taking to preserve water quality? OK

REP. GAIL STOLTZ I would just like to follow up what Rep. Huennekens started. Dr. Hodder, I just have some technical questions right now. How much fertilizer do you use per acre on your reclamation plots?

DR. RICHARD HODDER The amount of fertilizer we have used in the past and the present is based usually on soil sampling, sometimes on the ratio of nutrients in a fertilizer which is readily available, so we have used varying amounts. We have used from nothing up to 300 lbs of N per acre. Usually we used approximately 50 lbs of N per acre this year. Last year we used approximately 75 lbs on most of our broader treatments.

REP. GAIL STOLTZ OK, then you'd say that on an average on over 50% of your reclamation plots you used 50 lbs or less per acre.

DR. RICHARD HODDER I would say in the past we have used perhaps more like an average of 60 to 65.

REP. GAIL STOLTZ On at least 50% of the plots there has been that much or less.

DR. RICHARD HODDER Yes, I think that might be a fair statement.

REP. GAIL STOLTZ You can respond to this, and then possibly someone else on the plots that you don't work on--plots that the companies do themselves with their own reclamation. What are their figures approximately?

DR. RICHARD HODDER I think I should let them tell you what it is because I'm really not sure just what they have applied.

REP. GAIL STOLTZ Is there a response from the companies?

RON SPAHN Generally speaking, of course, the plant nutrients should be added according to soil tests. Montana soils in their natural condition usually test low in nitrogen and this would be the primary plant nutrient added. In our instance, in the Decker area, due to annual precipitation you can't get benefit from much more than 50 lbs of nitrogen per acre, so it would be wasteful to use any more.

REP. GAIL STOLTZ OK, thank you. Ted, just a couple of technical questions. Do you in your department follow any specific policy on fertilization on lands that are reclaimed? Do you have any rules or regs that you have formulated?

TED SCHWINDEN I really can't answer that one. I'm not familiar with rates of application and the procedures that they use on the individual mine sites.

C. C. McCALL Yes, our basic thoughts are after an area has been graded to specifications we do require on all mining situations spoil tests so that we can determine the characteristics from the chemical standpoint, and recommend to the companies or consult with them on additives whether it be nitrogen, phosphorous or what have you regarding the needs for the spoils; and we do, our thoughts are that after the first year after grading it is a harsh environment for any vegitative critter to become established in, and we feel that stabilization is very important. We have gone through the process of judging, mapping and decreeing that certain soils be saved for top soiling purposes. These are very precious. We think they are needed and very much of a necessity. So after these top soils that have been saved and salvaged are replaced on the mine, we hope that we can stabilize them as quickly as possible and we feel that during the first year that fertilization is fine, even possibly irrigation would be fine if we had no saline seep problem in the situation that could develop. We want to stabilize the disturbed surface as quickly as possible. The second year we will examine the situation and if we had significant failures we would require investigative studies to determine what the failures may or may not have been. And perhaps fertilization and/or irrigation may be needed the second year. But if a bond is to be released in five years, administrative policy has been that in the last three years we would not expect to see any fertilization or irrigation so that we can judge hopefully how it will do on its own in withstanding droughts, weather extremes and what not.

REP. GAIL STOLTZ Then you do expect the reclaimed land to stand on its own without additional help such as fertilizer. It's not feasible then I suppose at this time to ask if you have any area at that stage now standing on its own without fertilization since it's fairly new.

C. C. McCALL No, the law was passed March '73. This is really the first significant effort by the company to reclaim vegitative lands disturbed under the '73 act and the commitments thereof. This will be the first significant vegitative effort.

REP. GAIL STOLTZ Thank you.

CHAIRMAN BRADLEY I have some questions that I would like to pursue, C. C., while you are standing there. These are on provisions of the existing act and the adequacy of them. When we passed this act several years ago the big discussion was about the provision on section 9, selective denial. As I understood the earlier discussion selective denial has only been evoked twice. Now what about the situation of selective denial for exploration. Has this ever happened? Or will it?

C. C. McCALL Prospecting is the term that is used in the strip mine law. Yes, it has been involved. Very limited, to a very limited amount in the prospecting endeavors. I know of one hole that was deleted in the Bull Mt. area because of the exceptional scenic characteristics. One area in the Long Pines area, the Capitol Rock situation, was deleted or denied because of its exceptionally scenic characteristics. Basically there has been very little direct application of section 9 to prospecting.

CHAIRMAN BRADLEY Section 9 also discusses the effects of permits on adjacent land. Now does the application information include what the adjacent lands are ...

C. C. McCALL No, let me repeat what I think you mean by that. An area is to be deleted or denied if it possesses special critical, unique, exceptional characteristics regarding biological productivity, ecological fragility. We get application only on the area that is to be mined, on the specific 100 acres, 200 acres or what have you. We do not get any information on adjacent areas to allow us to compare whether indeed the mined area is exceptional, critical, unique or special. So therefore, these are comparative terms so if we are to determine if the mining area is unique or critical based on adjacent lands, or county lands or statewide lands, the department is under the gun or has to assume the responsibility to go out on its own to obtain this data on adjacent lands. It is a comparative type thing and we do not receive any data on adjacent lands to make these comparisons. Have I approached the question?

CHAIRMAN BRADLEY Yes, thank you, further questions on section 9. Subsection 3 of that section discusses, well if I could just read this, "If the department finds that the overburden on any part of the area of land described in the application for prospecting or strip mining permit is such that experience in the state with a similar type of operation upon land with a similar overburden" and then it goes on and finishes that statement. Do you feel that this is too restrictive in that it's only discussing experience in the state and experience in the state is a fairly new thing. Shouldn't we perhaps also be allowed to look at the experience in other areas that would be appropriate to consider such as other experiences in the semi-arid northern plains.

C. C. McCALL Yes, I think it is real restrictive and I agree with you that I think experience in the state is extremely limited. I would hope that we should be able to draw on relevant information that could be obtained from North Dakota, Wyoming or the other regional states or information from eastern states where that information was judged to be relevant. If you interpret that particular statute strictly in state experience it may mean that we could not accept information that has been a research prepared by Mandan Riverside Lab or the other outstanding agricultural research stations that are studying strip mining research. There is much to be learned from the North Dakota experiences and research that is being done there. And I should hope that we could draw on this information and use it here in Montana.

CHAIRMAN BRADLEY Let me ask you one other question on a different part of the act and that is the bonding requirements. Now the bonds are held up to five years. Do you think this is sufficient and has it ever been decided that they would be held longer than that amount of time?

C. C. McCALL I think the law specifically says that it must be held a minimum of five years. Basically on the vegitative efforts, it indicates (I don't have a copy in front of me) but that if the grading portion was done and it meets the standards that there is no possibility, maybe that is not the right word, it's not expected that saline seep will develop or hydrological problems will develop, if everything appears, well the grading portion can be released earlier, but the vegitative portion must be held a minimum of five years from the initial vegitative efforts. It just depends on when this bond is going to be released - depends on the vigor of the stand, our assessment of its ability to withstand droughts, and continue to establish itself with the harsh environment that it finds itself in. Our judgement of the fact that it could feed and withstand an equal amount of grazing from domestic and wildlife, this is a part of it. And our interpretation of it is that they have in fact returned a permanent, diverse, primarily native vegitative stand. So it can be held longer than five years.

CHAIRMAN BRADLEY One other question then on the bond. How is the amount determined. It is clear I think that reclamation in different parts of Montana is going to have different costs, is this used in determining the amount of bond.

C. C. McCALL Right, the statutes require the companies provide us with information on the cost of high wall reduction, back filli grading, and what not. Companies supply us with their estimated cost and we assess these figures the best we can and assign bonding rates. (End of third tape--following in brackets from secretary's minutes) [We feel that the bonding is adequate at the present time.]

CHAIRMAN BRADLEY [What is the range of the bonding?]

C. C. McCALL [$6500 per acre is the highest.] . . . has been assessed on what we call associated disturbances. These are ahead of the actual mining that are permitted to allow cable dragging back and forth to supply electricity to the large drag lines, and what not, or just to move electrical power houses or units, or top soil stockpile areas--miscellaneous associated disturbances. It has been as low as $200 an acre for that type of activity.

CHAIRMAN BRADLEY Thank you. If there are no other committee questions on that I think we should discuss the topic of reclamation of western lands; and, I think, we should try to plan to be out of here by 10:15 so gear your questions with that in mind.

REP. MIKE MELOY May I indulge in one last question on administration? I will be very brief and I would like to ask the question of Mr. Berry. The question that came to my mind after Rep. Moore asked his series of questions, his last series, and the question is--is there any jurisdictional overlap between the authority of the Department of Lands on sources of water pollution and the authority of the Department of Health to control both the sources of water pollution and their effects on water quality standards?

LEO BERRY I'm going to have to qualify my statement. I'm not totally familiar with the Water Quality Act and their authority under it, but I would say that there probably is some overlap. As I understand it we have control over some areas and Mr. Botz could probably explain a little further, that we have control over, I think, underground water situations, things like that, but to some degree I guess there would be an overlap--but we do handle some things that they say they do not have control over, is that correct?

MAX BOTZ There are a number of things that we are not involved in in the initiation of a mine--usually involves making an asessment of the present water quality, and this is not a regulatory function of our agency so in that sense they do things that we do not do. We have the state regulatory authority over both surface and ground waters associated with these mines. In their mining provisions they do have some capability for putting standards on effluence that exit the mine. We also have capabilities of putting these standards. I think our standards work in concert with each other. They have some capabilities of acting somewhat more rapidly than we do through our permit system, which requires some public hearings and other things--so at times we are finding it convenient to use their regulations to assist us in our operations.

LEO BERRY We tried to when we drafted, and I'm not a water quality expert by any means, but when we were drafting the regs we tried to correspond as closely as possible with the Department of Health regs and their standards as a guideline to try to coordinate the two so we would have a uniform standard as much as possible in the state as far as water quality is concerned.

MAX BOTZ Their standards are referred to our standards for the most part.

REP. MIKE MELOY There are no problems though in enforcement. Are there any differences in enforcement mechanisms between the two departments, in other words is there a point beyond which the Department of Lands has no further enforcement authority and the Department of Health picks up. It seems to me that the two acts were drafted entirely separately and I'm wondering whether they have been dovetailed with regard both to enforcement as well as to coordination of standards. I take it the answer to the last question is yes and the answer to the first question is ...

LEO BERRY I can't remember the first question. We have drafted, like Max says, a complete set of standards and they do refer to the Department of Health standards. The companies, when we were drafting regs, said you shouldn't be involved in this at all; this is a Department of Health matter. But we felt that under the act we did have some obligation. Our authority is rather broad and not very specific as to what we have authority over. It says if it creates a hazard to a stream, well as we saw in the earlier discussion that is subject to interpretation itself, so we tried to coordinate with the Department of Health and to some extent our regs are a little bit stiffer than theirs in that the water quality cannot be reduced below its present quality, as I understand it, and that's what the regs say, you set effluence standards on streams and therefore there could be a further degredation, you set a standard on a stream say, the Tongue River, and it can go down to that level, is that correct?

MAX BOTZ No, that is not correct. The department standards apply two fold. They apply, number one, to the specific discharge that is occurring to waters of the state of Montana and it is specifically defined in the mining company's permit what they can discharge both quantity and quality wise. We also have stream standards and it is also that the permit conditions are based on them not violating stream standards that we have. The existing discharges are subject to our permit conditions and to stream standards and our present department position is that any further mining developments will be a no discharge condition to state waters.

LEO BERRY Well, I guess the point I was trying to get at is that the meat of our regs say, "waters within the public domain of the state that possess a higher quality than those established on the effective date of established standards shall be maintained at their present high quality". That is a little bit stiffer than yours, wouldn't it be?

MAX BOTZ In that regard, (inaudible).

kinds of soils, topography and everything else that goes to make up the life system in a particular area--and we certainly have a variation. Should we be thinking of sometime down the road in the future of laws for selective reclamation? Perhaps we are spending money in areas that really isn't justified. Does anyone care to comment on this? Yes, Ma'am.

CAROLYN ALDERSON Rep. Shelden, I don't think that is a good idea at all--being from a ranching community. In that area it is a rather ominous prospect to think that maybe your particular area would be one of those sacrificed areas; and there would be some possibilities for manipulating every potential mine site into that, I think. I have noticed that the companies have leased the surface of or bought a tremendous amount of acreage in the entire eastern half of the state and some people say only 45,000 acres, or only--I don't know how they come up with the "only" figure--but I think from the point of view of just abandoning something without trying to reclaim it and trying to protect the ground water could have disastrous effects on off site as well in terms of erosion--in terms of water going into the Tongue River. As Mrs. Hayes pointed out the Decker-Birney area which the Bureau of Land Management and the US Forest Service have studied rather intensively is dissected entirely by the Tongue River and every stream in that whole area flows into the Tongue River; and we feel there would be potential off site damage. Rather instead of selective denial perhaps the law should be considering instead selective approval. It's a slightly different emphasis on if an area can't be mined, I mean can't be reclaimed, then the burden of proof should be on the company wishing to do the mining to prove that they can reclaim it rather than upon the state to prove that they have grounds for denying a permit. The burden should be on the company to show the state why they should grant them a permit. Thank you

REP. ART SHELDEN I was quite sure this would be slightly controversial. Does anyone else care to comment on this. I think it is worth pursuing. Now I haven't been in the Decker-Birney area, I'll have to confess. It might be safe for me to say that I have seen areas in Wyoming that I didn't think you could do anything with--you couldn't make them worse, let's put it that way. Is it worthwhile? I hope there is no one from Wyoming here. Oh, oh--this is further south. Does anyone wish to comment at all on this angle. It seems to me that it is worth pursuing. Yes, sir, Dr. Gordon.

DR. GORDON To your question--as in Kentucky and West Virginia where they didn't spend the money to reclaim--I think you should go there and visit, too.

REP. ART SHELDEN Would you say that again? I didn't quite hear you.

DR. GORDON The answer to your question is in West Virginia and Kentucky where they didn't spend the money to reclaim the land.

REP. ART SHELDEN Well, probably that land in the first place would not fall in the category that it is not worth reclaiming.

DR. GORDON It was to certain people's decision; and the people who made these decisions were the ones who controlled whether the land was to be reclaimed or not. Now if you put it into law and say that you don't have to reclaim that land because it costs too much money, you are saying forever that anyone whoever is going to use that land doesn't have that right. And I think in Kentucky they might have made the right idea according to the coal companies that didn't reclaim the lands, or in West Virginia. I think they take a lot of money out of that land and I think they should reclaim it.

REP. ART SHELDEN Any other comments. I don't know for sure if we are talking about the same kind of land. I have in mind land that I have certainly seen, and not in Montana, that is strictly desert. You couldn't feed a cow on 300 acres, or support a cow on 300 acres. What do we do with that kind of land? Yes, Ma'am.

JEAN HJERNSTAD I'd just like to make one comment about most of southeastern Montana. It is good cow range. It is different criteria than western Montana but you can raise 25 to 50 lbs of live beef per acre on most of that country per year, and that is nothing to sneeze at. Is is very impressive in terms of range land anywhere in the country.

REP. ART SHELDEN Any other comments. I'm trying to be the devil's advocate here and explore this a little bit, but probably we are not going to go very far in that direction. I don't know that we should. But I was just curious. When does it become a question of economics of how much money we should spend. I think that is all, Madam Chairman.

REP. DAN KEMMIS I'd like to ask some questions about the problem of revegetation. The reclamation law requires that an operator restore the land with a permanent, diverse vegetative cover that is capable of sustaining a broad range of animals and preventing soil erosion. I'd like to pursue a series of questions along this line, and in order to help people to follow the drift of the questions I'd like to just express very briefly my own preconceptions in this area; and then if my preconceptions are wrong if any of the experts would care to comment about that that would be very helpful to me. But my own limited experience in this area, and it isn't a wide experience, leads me to believe that when we talk about ecosystems of any kind, and here I am talking primarily about the cover on the ground and then the animal life that is capable of being sustained there, when we talk about that we are talking about something that is an extremely fragile sort of thing--something that is rooted in an exceptionally long history of evolution; something that depends for its perseverance upon the very complexity of the system itself. And it appears to me then that when we go in and strip the land and disturb the soil we have to say the very least upset the balance in a remarkable way and then the question of restoring that becomes a very difficult matter. Now it is my understanding that when we talk about reclamation we are talking about reclamation for the very, very, very long term, that is for centuries and centuries, and for restoring the land in such a way that it can sustain productivity for centuries. Now, I feel and I may be wrong about this in order to maintain the highest level of productivity on the land that the land has to be able to at least sustain the native life that was there before the mining began, and that if we cannot reclaim it to that place where it can sustain that native life than we haven't reclaimed it at all. I would like to ask first of all Mr. Wambolt, Dr. Wambolt is a range specialist, whether you think the native species are important in reclamation.

DR. CARL WAMBOLT Yes, I certainly do feel a native species is important in reclamation. It's opening a whole can of worms to try to explain why, though. I've been telling people for a number of years that I believe that native species are important in reclamation efforts. I suppose the way to begin this, again, would be to say if you have had any background in ecology, biological field of ecology, you know that mother nature has provided the most productive system that she can given the environmental constraints on any given area. The various stages of evolution, if I can use that term on an area, might vary the circumstances. But certainly these native species, the ones that she intended on a site, are the most productive ones I think we can hope to reestablish. I think that what Dick Hodder has pointed out here earlier that certain introduced species will reestablish perhaps faster, I shouldn't say reestablish but establish faster, is a result of plant breeding techniques, and so on and so forth, that certainly have their places. But when talking in terms of full reclamation I feel that native species have got to be a criteria. Just to show you that somebody else has this opinion, I have a research report here written by the forest service team under SEAM monies from Decker, Montana. In their conclusions they are talking about some of the things they looked into, which included comparing introduced species to native species. And they found in general the introduced species, this is only one year's information, were establishing faster; but they go on to say "These data do not give a strong basis for choosing between the three grass mixtures under study. Clearly the mixture of introduced grasses has outproduced the other two mixtures; however, the long term considerations favor the native species as being most likely to hold the site in spite of drought, insects or disease." So here we are getting into what Rep. Huennekens brought up earlier about climatic fluctuations and I've repeatedly said that I don't think you are going to insure reclamation success, or be sure of reclamation success, in a time frame measured in less than decades. For several reasons not only including that of climatic fluctuations but when you introduce such things as fertilization into it; this is another can of worms, too. The questioning that came about earlier about fertilization left me to believe that the people asking the questions felt that perhaps if fertilization wasn't continued on an annual basis then these plants that were receiving the fertilizer were demonstrating that they were not dependent on fertilizer. This is not necessarily true. We have over a decade's research on range fertilization in the state right now and we know there is a very definite residual effect to these fertilizers. When you are talking about 50 lbs of nitrogen, if you are talking about applying a 33-0-0 fertilizer mixture that is 150 lbs of bulk fertilizer to the farmers, that is quite a bit of nitrogen actually and we do not know of any native range conditions even the most productive in the state given adequate moisture that can use that 50 lbs of nitrogen in one season. This residual effect might be there for a decade in itself. Now, I'm not saying that fertilizers shouldn't be part of reclamation. I think that they are a valuable tool and are going to speed up this process considerably. I am just putting out a red flag here. It means to me that perhaps the bonding being released after five years is not adequate to assure reclamation. Another reason being that if you go through the reclamation efforts, seeding and so on, you apparently aren't going to allow any livestock grazing on the site for a couple of years after the seedlings emerge, so by this time you have gone through about three years time. If livestock are introduced even after the third year then they have only been allowed to exert a pressure for two years. I'd say that it would be extremely unlikely that you would be able to measure the effect of this recontinued use in two years time. I would say it would be unlikely in five years time for that matter. These reasons I've tried to mention--I think that the bonding period of five years is inadequate.

REP. DAN KEMMIS Thank you. Mr. Posewitz from the Fish and Game. Mr. Posewitz, as the department that is responsible for managing the wildlife resources of Montana what would your position be on native versus introduced species cover?

JIM POSEWITZ Our position on native versus introduced species was that we campaigned long and hard for the language that is in the present law, that you have to establish the native species. As Dr. Wambolt pointed out the plant and animal communities evolve together and it is quite unlikely that an introduced species would contribute much to the stability of the wildlife population in a given area. The law requires that these sites sustain a comparable level of grazing of domestic stock and wildlife. Now in the five year period I would say it would be virtually impossible to assess whether or not this has been accomplished. First of all the initial assessments of wildlife use in most cases were conducted on sites that had existing mines. Most of the mines in operation began without an adequate assessment of the wildlife use. As a mine progresses in its own life expectancy there are problems with animal behavior that will preclude a comparable say pristine (not necessarily pristine) but an original use of degree of activity in the site--what I mean is the shovel may be only a few hundred yards distant and wildlife behavioral patterns for some species will preclude their acceptance of a site even if we had accomplished the obviously very difficult task of restoring the native vegetation to the site. And given the fact that wildlife assessments on these sites today are inadequate, the problems of quantifying wildlife use are very difficult and the option of section 9, as has been pointed out, is also a very difficult thing to accomplish say as far as ecological fragility. The need for eventual determination of just exactly what those terms mean is very pressing with us, and to gather sufficient data--say to support a denial position--not only in an appeal to State Lands but in the eventuality as Commissioner Schwinden pointed out of going to court with this is all very difficult, and I don't see anyway wherein five years we can really answer those questions.

REP. DAN KEMMIS Could I ask someone from one of the companies that has had experience with reclamation, perhaps Western, to give some indication of your experience with revegetating with native cover.

MIKE GRENDE (?) I haven't been with Western Energy but a little over a year, and we've continuously brought up points here relating to reclamation potential in Montana, and I'd like to speak just of the Colstrip area right now. We've discussed the weather cycles; we've discussed the issue of native species, wildlife habitat and its dependency upon native vegetative cover. What I would like to do is cite an example in the Colstrip area. We do have a longer history of Colstrip mining in Montana as in 1923 the Northern Pacific started their activities down there. In 1932 there was an area that was pretty excessive in overburden, and the operation by the Foley Brothers down there became what we call spoil bound. So what they did is they used end dump trucks, horses and wagons, they even used horses and fresnos to remove a lot of this overburden material from the active mine area; and in doing so they created an 18 acre fan out over native range. There was no selective spoils deposition and in turn there was no top soiling, no seeding, no fertilizing and no irrigation on this area. We have gone through 42 years of plant succession on this area, and I might also add after this area was pointed out to me I check with the Burlington Northern because they own that exact surface. Their land use history shows that of this 42 years there was 17 years of pretty heavy grazing. This area is very unique because if you go out there now you can hardly distinguish it from the native area around it. The plant composition on this site consists of the exact species that existed on the native areas in that immediate area. And I might also add that some of the gentlemen that have commented upon the need for native species, and so forth, and also the wildlife--I do not believe have ever looked at this exact site. I have offered many invitations to try to get down there and I hope that they make it before I leave the area, and develop an idea as to what native potential we have in that area. Now reclamation in Montana basically consists of understanding as many of nature's processes as possible and then speeding those processes up, and that is what we are trying to do down there, and we use research to try to understand what these processes consist of. Thank you.

REP. DAN KEMMIS Thank you. Mr. Hodder, I took it from earlier comments that you made that it just simply has been easier to get a quick take from introduced species than native species on the spoils and that in fact there has been difficulty in getting native species to take. Is this the case?

DR. RICHARD HODDER Generally, you are right. In reference to the conversations proceeding this, however, I think we should distinguish between reclamation, restoration and rehabilitation. I think we are leaning very heavily toward restoration; and restoration in an intensive way I think is quite impossible. Now getting back to the introduced and native species, the reason we are using the introduced species is for assurance of cover within a reasonable length of time to establish the investment in top soil and erosion control and such. There are several native species that react quite quickly with a good degree of assurance-- for instance Thick Spike Wheatgrass and Slender Wheatgrass. These are two species that we can rely on most every year to produce in a reasonable length of time some kind of cover. Western Wheat Grass which is perhaps the most dominant native grass in the whole area is relatively slow, so in order not to lose our investment of top soil we try to stabilize the surface first with temporary cover which we feel can be accomplished in a matter of days, then the fast reacting introduced or native species, such as the Thick Spike and Slender, take over and give us the stability necessarv to hold the soil still so that the slower developing grasses can eventually take over.

REP. DAN KEMMIS Thank you, Dr. Hodder. I would like to ask Mr. McCall a few questions now on this line. Mr. McCall, to return now to the section we have been talking about that requires a restoration of a permanent, diverse vegetative cover, and in the regulations pursuant to the Reclamation Act the department has called for this cover to be primarily native, is that correct?

C. C. McCALL That is correct.

REP. DAN KEMMIS Are you concerned, Mr. McCall, that we may have some difficulty in meeting that requirement?

C. C. McCALL No, hopefully not. Our definition of permanent, diverse, primarily native is based on the soil analysis, chemical and texturial characteristics that the plant will be growing in--the spoil analysis, the climate, the slope aspect, and topography of the finished graded site. Also we look at the wildlife inventories to determine what animal life uses the area so that we can plant some cover crops for cover and food requirements. And from all these resource studies we try to design site specifics, reclamation or revegetative prescriptions for the area. We don't have much experience as I have said earlier. This will be the first real year or first attempt this spring for any major revegetative efforts under the new law, under our present bill format. But we are hopeful as we can be without any basic experience that these will be successful. We plan to monitor at the end of each growing season and require remedial efforts each successive growing season if there are problems or failures.

REP. DAN KEMMIS You are confident, though, that on the basis of experience and in particular some experience in difficulty in getting native species to take that we will nevertheless be able to assure a permanent, diverse vegetative cover on the spoils that we have to reclaim.

C. C. McCALL Well, at this point in time we are optimistic with our limited experience. We feel that we can do this.

REP. DAN KEMMIS Do you have any concerns about the issue that has been raised about the climatic cycle and about how long it may take for us to know that we have obtained that particular goal of a sustained producing cover?

C. C. McCALL I'm really not knowledgeable at all in the area that Mr. Huennekens spoke of, the cyclic patterns of climate. This is something that is being brought up and I am sure should be considered. We will try to monitor the vegetation as closely as we can with an eye toward the climates that it is existing in. I might say that the law requires before bond is released that there will be an opportunity for a public hearing so that various people--involved, concerned, interested or have something to say in this regard or in any regard--can speak out and make their interest and questions known. I'm not knowledgeable in the long range cyclic patterns.

REP. DAN KEMMIS Mr. McCall, if there is evidence of something like this cycle and it is something that has been spoken of often in Montana history in particular, something like a long range ten year or an eleven year cycle, how would you respond to any suggestion that the $200 per acre that is retained for vegetative bond that that should be held by statute for a period at least as long as that climatic cycle.

C. C. McCALL This would be something we'd have to look into, research into. This would be certainly a possibility if this is considered a significant consideration based on our studies in this area. It most definitely might be advantageous.

REP. DAN KEMMIS Thank you.

REP. PAUL RICHARDS I would like to thank everyone, personally, for your patience here tonight and your information. I have a question for Mr. Hodder. The whole conversation tonight concerning the reclamation has sort of been running without a rudder and I would like to establish that rudder. What is your definition of reclamation, please?

DR. RICHARD HODDER I would say that reclamation in the sense that we are using it here is the reestablishment of a productive, useful surface to a disturbed area.

REP. PAUL RICHARDS Would that include a self generation or a capability of sustainence without massive doses of chemicals or water that would not naturally take place in the ecosystem?

DR. RICHARD HODDER No, I think my definition might include the development of a sewage lagoon or an airport or a golf course as well as for other uses.

REP. PAUL RICHARDS Do you know of any reclamation in the terms of providing that the land is able to sustain itself, to self generate itself, without these artificial doses of water or fertilizer. That would be my idea of reclamation. I can't understand how it can be reclamation when we are mandated to continue putting 35 to 50 lbs of nitrogen and that sort on the soil.

DR. RICHARD HODDER Well, let me explain maybe to some extent that no matter what purpose we put land to it has to be managed for that purpose or it will destroy it. If we are going to crop it, either by grazing or whatever, then the plant nutrients that we remove we should replace. The use of land without management is mismanagement and we will destroy the product that we have achieved. So let me say, too, that the purpose in fertilizing primarily is to encourage and speed up the plant successional processes and the development of a soil that will sustain a cover under the basis for which you desire.

REP. PAUL RICHARDS Do you have any fear that due to this encouragement by the fertilizer that this ecosystem will become hooked, as we have seen in other areas where they have continually relied on fossil fuel fertilizers?

DR. RICHARD HODDER I don't know where you may have seen vegetative cover that was hooked on fertilizer. But we do have areas in the Western Energy research area which have been fertilized once which now are about six years old and has made a real fine cover--good density and good vigor.

REP. PAUL RICHARDS And you remain confident that that will continue through the dry cycles?

DR. RICHARD HODDER Yes, indeed. And I should say, too, that although we have been criticized heavily for using broad mixtures of species in our planting, the reason for it is to have a seed source there which species of which are capable of surviving under the varying conditions that will develop over time. This is merely building assurance into our reclamation program.

REP. PAUL RICHARDS I'd like to thank you. Just as my own comment I feel that Rep. Shelden alluded to the problem. What I am trying to expose is that we are really providing for this land to continue without artificial influx of water and fertilizer. My opinion on the reclamation research, and I would hope that we would work on this, instead of just continually hoping and not looking beyond five to ten years, that we will remember that we will have differing water cycles. I just hope that you would help us out in this regard.

REP. WILLIAM DAY Mr. Hooks, Mr. Phillips and Ted Schwinden, we have all talked about valley floors quite a lot lately and I would like to pose a hypothetical question to Mr. Schwinden or anybody in the Land Department and then I'd also like to have these gentlemen over here elaborate on it. Let's assume that we had a valley floor that had a fifty foot overburden and a fifty foot seam of coal and the valley was twenty five feet above the surface of the stream. Now when you reclaim this I realize that you have approximately a five percent gain in your top soil but you would still have approximately fifty feet below the original surface or forty seven and a half feet, and if you were twenty five feet above the surface of the stream to begin with you would be twenty two and a half feet below the surface of the stream whenever you filled in your overburden. Now how would you anticipate that this would be reclaimed and brought back into production?

TED SCHWINDEN Well, hypothetical questions are always tough to answer, Mr. Day. The swell factor would be substantially more than three feet on fifty feet of overburden but you would still have in effect a depression with the ratio that you mention. If you are talking about a live flowing stream, I guess you would wind up with two or three different situations. You could restrict mining up to a certain point from the stream, this is one of things we discussed. In that case you would have a very unusual situation. I guess you would have what is called a raised stream bed, because let's say that you move 400 yards back and then you would have a general mined area which was below the stream level--in effect you would have an elevated stream sitting up there sort of like an elevated trolley line or something like that. That's a situation that I'm sure over time, unless you had a substantial width, would deteriorate. With spring run offs if you had much flow in that stream eventually it is going to wash down to the same level--you are going to create a new channel. The alternative is, if you are talking about dry streams or intermittent streams, presumably there is a possibility you could mine right through the drainage, interrupt the stream through a series of interceptor ditches, and then reconstitute the area with appropriate drainages in it. I think there are several alternatives in mining plans depending upon, if you are talking about the implementation of the act, that it would have to be done in a way that it would not result in sedimentation, stream erosion or degredation or so forth.

REP. WILLIAM DAY Let's make it a little more hypothetical then, let's say it was the Yellowstone Valley. Say it was the valley next to the Yellowstone River. You are not going to mine the stream bed of the Yellowstone River?

TED SCHWINDEN OK, I think that is agreed. You are talking about mining up to some distance to it.

REP. WILLIAM DAY That's right and I would like to know how the land would be reclaimed whenever you go below the level of the bottom of the stream bed after you have filled in your overburden.

TED SCHWINDEN Well, as far as the mining in the area we can constitute it and retopsoil it and grade it to whatever the contour that is appropriate --which is five to one or less in that valley. If you are talking about the flatlands, you would probably wind up with almost flat land but you are still going to have an elevated stream channel.

REP. WILLIAM DAY That's true. How are you going to get drainage from this reclaimed land?

TED SCHWINDEN Well . .

REP. WILLIAM DAY When it is lower than the stream channel?

TED SCHWINDEN I imagine that in the reconstruction of the area that you are going to wind up with the same situation that we anticipate. All of the mined areas as far as I know have drainage flows out of them, because they all slope in one direction or another. I don't know; Dean, do you or C. C. want to comment on that? A situation we haven't run into in reality.

REP. WILLIAM DAY One other thing I would like to know, Ted, at what degree of slope do you forbid mining? Is it prohibited?

TED SCHWINDEN There are two areas. First of all our regulations state that in the general mined area all grades must be five to one or less. On the highwall it is three to one. Now the other prohibition is a blanket prohibition in the act which says that any kind of mining is prohibited which results in a bench or a fill bench, in fact contour mining is prohibited under this law. That's another approach to the same kind of problem. But our basic regulatory guideline is five to one or less.

REP. WILLIAM DAY I would like to hear from you gentlemen who have sat over here and listened all night--I would like to hear how you would reclaim the land?

PAT HOOKS Rep. Day, no self respecting coal company would allow their lawyers anywhere near a question like that. It obviously is an engineering question first, it seems to me, and a reclamation question, I think, within the framework of the act; and very seriously that if a company were presented with such a problem they'd be faced obviously with the existing provisions of the act, that we have discussed rather at nauseant in respect to your bill 349 in the various hearings, and if they could not submit a plan that met the approval and stood the test of the Department of State Lands, that the State Lands would selectively deny.

GENE PHILLIPS Mr. Day, with respect to your question, I think we did discuss at length in the meetings on your bill the question of what we referred to at the meetings as a perch stream. I think in the mining plans and I'm not a mining engineer, as Mr. Hooks said, I'm only a lawyer, but I do have some people here with some background in this area. In the Pond Creek Area where Decker is mining at the present time there are diversion ditches and there are diversion channels in the Pond Creek itself, which is a very intermittent stream, is diverted around the mining area. At the conclusion of mining in that area the entire mined area will be restored to provide for drainage to that area and as for specifics of that there are some people here from Decker who could explain it in far more detail than I.

REP. WILLIAM DAY I didn't get your last comment. Who did you say could explain it in more detail?

GENE PHILLIPS Jack, do you want to?

JACK RATCHYE On the Decker area we are going to mine through some drainages and I think you are alluding to drainages of streams. We will reestablish the channel in these drainages. We have quite firm plans on reclamation contouring that will and do allow us to do this. We have good engineering principles that we used on all drainages. We have good estimates on what the swell is on our reclaimed land. We do know that in some instances we can improve the grading of these streams by reducing the grade. We can make it flatter and thereby reduce the amount of washing we get. So we are not in the least bit worried about what we are going to do in these drainages. We know we can reestablish them in a good engineering principled way.

REP. WILLIAM DAY Well, I couldn't hear you very well but I guess it's getting late so, Madam Chairman, I will close with that. Thank you.

CHAIRMAN BRADLEY Time is getting late and although we didn't get to some of the topics that we meant to, I know that committee members still have questions, I think it is time to close the hearing. I think it was a worthwhile evening on an extremely important topic. So on behalf of the committee I just want to express our appreciation for your time and help and comments tonight, and thank you for coming.

The hearing closed at 10:40 p.m.

Dorothy Bradley, Chairman

eas

EDAEM

Economic Development Association of Eastern Montana

District 1
Phillips
Valley
Daniels
Sheridan
Roosevelt

District 11
Petroleum
Garfield
McCone
Richland
Dawson
Prairie
Wibaux

District 111
Rosebud
Treasure
Custer
Fallon
Carter
Powder River

Box 388 - Sidney, Montana 59270 - Tele: (406) 482-3035

April 2, 1975

Representative Dorothy Bradley
Montana House of Representatives
Capitol Building
Helena, Montana 59601

Dear Representative Bradley:

Thank you for your invitation to attend the oversight hearing on the implementation of Montana's Strip Mining and Reclamation Act this Friday evening in the House Chamber. Unfortunately my Veterinary business will not allow me to stray very far from home this time of the year.

Our major concern regarding the Act is that the Legislature appropriate sufficient funds that will enable those State Agencies directed to enforce the Act to properly staff their Agencies. In our opinion those charged with the enforcement responsibility of the Act have a tremendous responsibility on behalf of the Montana public. If Montana does not have the quantity and quality of people to properly enforce the Act, what good will it do to boast that Montana has the "toughest" Strip Mine and Reclamation Act in the Nation. It is our suggestion that funding regarding the enforcement of this Act be given high priority.

Best wishes for a successful hearing.

Sincerely,

Robert R. Bell, DVM

Dr. Robert R. Bell
President

[illegible]

MONTANA DEPARTMENT OF FISH AND GAME

Statement - Oversight Hearing
Montana's Strip Mining and Reclamation Act
Before the House Natural Resources Committee
April 4, 1975

By Jim Posewitz

The Montana Fish and Game Commission is responsible for the perpetuation of the fish and wildlife resource of this state. This responsibility extends to both game and nongame species.

In order to meet this responsibility, it is our primary objective to preserve the habitat that produces this fish and wildlife resource. In the pursuit of this objective we have actively participated in Montana's effort to obtain and enforce the laws governing the strip mining of coal and subsequent reclamation of land.

We continue to be active in attempting to preserve fish and wildlife habitat primarily by cooperating with other agencies, both state and federal, as well as with private industrial concerns.

Prior to 1973 we served on the advisory board to the Department of State Lands in matters of surface mined land reclamation. Today we respond to and comment on environmental impact statements, we serve as a designated member of the Montana Energy Advisory Council and we respond to numerous requests for fish and wildlife information for governmental and nongovernmental entities.

To meet the demands for fish and wildlife information we also conduct numerous coal and energy related investigations. A copy of the investigations currently underway by our department is attached for your information.

I will be happy to answer any questions I can regarding processes of strip mining and reclamation as they affect the fish and wildlife resource.

MONTANA DEPARTMENT OF FISH AND GAME
COAL AND ENERGY STUDIES

November 1974

Project Title: Project Leader - Coal and Energy Studies
Initiation Date: August 1973
Projected Completion: Continuous
Principal Investigator: Robert R. Martinka, Miles City
Funding: Montana Department of Fish and Game - $23,000 per year
Objectives: (1) Supervise studies relating to effects of coal and energy developments on fish and wildlife.
(2) Serve as a permanent member of Montana Energy Advisory Council.

Wildlife Studies

Project Title: Bull Mountains Coal Field Study
Initiation Date: January 1972
Projected Completion: June 1975 ?
Principal Investigator: Gary Dusek, Roundup
Funding: Montana Department of Fish and Game - $13,500 per year, Consolidation Coal Company - $10,500
Objectives: (1) To determine the impact of surface mining upon the wildlife resources in the area.
(2) To ensure that wildlife habitat values receive full recognition in any mining or reclamation effort, and
(3) To investigate possible modifications or innovations in the reclamation process to avoid unnecessary loss of wildlife habitat.

Project Title: Sarpy Basin Wildlife and Vegetation Study
Initiation Date: December 1973
Projected Completion: Continuous ?
Principal Investigator: Peter Martin, Forsyth
Funding: Cormorant Corporation - $10,000 per year
Objectives: (1) To determine impact of future surface mining operations on wildlife resources.
(2) To ensure that fish and wildlife habitat values receive full recognition in any reclamation efforts, and
(3) To investigate possible modifications, additions, or innovations in surface mining reclamation processes to avoid unnecessary loss of wildlife habitat and develop techniques to enhance habitat through reclamation.

Project Title: Decker-Birney Wildlife Study
Initiation Date: August 1974
Projected Completion: June 1976
Principal Investigator: Steve Knapp, Birney
Funding: Bureau of Land Management - $34,000 total for 2 years
Objectives: (1) To gather fish and wildlife resource information to fill the recognized needs of the Decker-Birney Study, and
(2) To develop techniques to quantify wildlife resources, either directly or through habitat quality and population productivity indices.

Project Title: Yellowstone River Migratory Bird Study
Initiation Date: September 1974
Projected Completion: August 1976
Principal Investigator: Tom Hinz, Miles City
Funding: Old West Regional Commission - $35,000 first year, $28,000 second year.
Objectives: (1) To inventory and assess importance of Yellowstone River to migratory birds, and
(2) To assess effects of altered streamflows on migratory birds using the river.

Project Title: Lower Yellowstone River Furbearer Study
Initiation Date: August 1974
Projected Completion: August 1976
Principal Investigator: Peter Martin, Forsyth
Funding: Old West Regional Commission - $5,000 first year, $4,000 second year
Objectives: (1) Inventory furbearers and associated habitat types along the lower Yellowstone River, and
(2) Assess impact of altered streamflows on furbearer populations

Project Title: Ecology of Longpines Area, Southeastern Montana
Initiation Date: Not presently funded
Projected Completion: 3-year study
Principal Investigator: Not established
Funding: Proposal submitted to SEAM for $30,000 per year for 3 years
Objectives: (1) To compile a comprehensive wildlife and vegetation inventory.
(2) To identify specific areas where conflicts may occur between uranium mining and wildlife and to assess the relative impact of alternative mining methods for reducing and/or mitigating wildlife loss and vegetation destruction, and
(3) To explore the model planning area concept as it applies to this region.

Aquatic Studies

Project Title: Yellowstone River Periphyton and Phytoplankton Study
Initiation Date: April 1974
Projected Completion: Continuous ?
Principal Investigator: Loren Bahls (Environmental Quality Council), Helena; samples collected by Department of Fish and Game
Funding: None, identification done free by Loren Bahls
Objectives: To identify periphyton and phytoplankton communities along the entire Yellowstone River.

Project Title: Lower Yellowstone Aquatic Invertebrate and Forage Fish Study
Initiation Date: August 1974
Projected Completion: August 1976
Principal Investigator: Robert Newell, Glendive
Funding: Intake Water Company - $25,000 per year
Objectives: (1) Inventory aquatic invertebrates and forage fish supporting major fish populations in the lower Yellowstone River, and
(2) Assess potential effects of reduced river flows on aquatic invertebrates.

Project Title: Lower Yellowstone Fisheries Study - Bighorn River to Miles City
Initiation Date: August 1974
Projected Completion: Continuous if funds available
Principal Investigator: Mike Haddix, Miles City
Funding: Montana Department of Fish and Game - $28,000 per year
Objectives: (1) To collect data to develop a better understanding of existing fish populations and their habitat requirements, and
(2) To assess the potential impact of reduced river flows on the aquatic ecosystem.

Project Title: Lower Yellowstone Fisheries Study - Miles City to Sidney
Initiation Date: April 1974
Projected Completion: April 1976
Principal Investigator: Larry Peterman, Miles City
Funding: Bureau of Reclamation - $25,000 per year; Colorado Interstate Gas - $5,000 per year; Panhandle Eastern - $2,500 per year
Objectives: (1) To collect basic data to develop a better understanding of existing fish populations and their habitat requirements.
(2) To adapt equipment and sampling techniques to large river studies,
(3) To develop methods for predicting proposed flow changes on important life history stages of important sport fish.

Project Title: Tongue River Fisheries Study and Lower Yellowstone Aquatic Invertebrate and Forage Fish Study
Initiation Date: August 1974
Projected Completion: August 1976
Principal Investigator: Al Elser on the Tongue River; Bob Newell and Larry Peterman on the Yellowstone River
Funding: Old West Regional Commission - $38,000 first year and $45,000 second year
Objectives: (1) To collect basic fish population data, species diversity, and longitudinal distribution on the Tongue River
(2) To identify and determine species diversity for aquatic invertebrates and forage fish on the middle and lower Yellowstone River, and
(3) To assess potential effects of dewatering on these components of the ecosystem.

Recreation Studies

Project Title: Investigation of water-based recreation on the Yellowstone River
Initiation Date: November 1974
Project Completion: August 1976
Principal Investigator: Max Erickson, Billings/Miles City
Funding: Old West Regional Commission - $24,000 for first year and $12,000 for second year
Objectives: (1) To compile and review current recreational usage of the Yellowstone study area in terms of volume type and geographic location,
(2) To assess the impact of altered streamflows on current and potential recreational uses, and
(3) To conduct a field evaluation of alternative and additional recreation sites with potential for water-based recreation.

Testimony of R. L. Hodder
before House Natural Resources Committee
April 4, 1975

My name is Mr. Richard L. Hodder. I am employed by the Montana Agricultural Experiment Station, Montana State University, Bozeman, Montana. My particular endeavors focus on disturbed land rehabilitation research, particularly on coal mined land reclamation. My comments will deal primarily with reclamation research progress and predictions in an attempt to place our reclamation problems in perspective so that a realistic appraisal of our land rehabilitation difficulties can be better evaluated. Until very recently, public effort, concern and emotion have centered so intensely on coal issues that few appreciate or comprehend the magnitude of our interrelated existing reclamation problems, not to mention major emerging new ones of staggering proportions.

Progress in reclamation research has proceeded at a pace which is extremely gratifying and well beyond general expectations of specialists in the field. Results of seedings, fertilizer effects, surface manipulation benefits, use of temporary stabilizing species, use of coarse buffer materials over clayey spoils and soil microbiology studies have worked sufficiently well to give credence to the rehabilitation program in the semiarid west. Experience with topsoiling has produced good results but much care must be applied to its use and the timing of its placement in order to gain the benefits that the process has to offer. Use of temporary stabilizing species may be the most feasible means of protecting topsoil and incorporating large quantities of organic material into the soil surface.

Research with temporary species, which are primarily cereal grains, have shown that with moderate fertilizing (50# N/A) and without irrigation, 30-40 bu/A barley may be expected the first year after reshaping. This production emphasizes a shortcoming of our present law in that it is, to my knowledge, the only reclamation law in the country which does not consider the spoils as a resource to be used toward its highest and most productive use. For instance, in 1975 productive dryland grain fields will be disturbed by mining which will have to be reverted to grass, according to the wording of Montana law.

Current research efforts are leaning on hydrological related problems of sedimentation and pollution of surface, subsurface and ground water. EPA funded demonstration projects at Colstrip, Savage and Beulah, North Dakota are designed to provide substantiating data on this subject.

Efforts using minimum tillage systems promise to conserve the equivalent of an additional inch of annual ppt under semiarid growing conditions. Soil water relationships and quality characteristics will be monitored with sophisticated instrumentation over several years to provide essential data. A SEAM funded project underway is intended to identify the effects of various fertilizers and application rates on response of individual native grass species.

Pasture fences are presently being constructed so that the first controlled grazing studies may take place on revegetated spoils this season. This project is a cooperative effort between local ranchers, Society for Range Management and the Montana Agricultural Experiment Station.

Some people are aware of the effort by the Montana Agricultural Experiment Station and Montana Tech in the reclamation of saline seep areas. Annual losses of crop productive dryland are estimated to exceed 15,000 acres, totaling more than 250,000 acres in Montana at this time, and increasing each year. Interstate highway construction, up to the current year, left approximately 2000 acres of roadsides and slopes to be reclaimed. Roadside stabilization represents the oldest current reclamation research effort of the Montana Agricultural Experiment Station. Bentonite mining has caused major disturbance and severe reclamation problems of a most difficult and trying character. Disturbed areas sorely needing reclamation from this source haveexceeded 200 acres each year for an extended period of time and havebeen projected to double this year.

In contrast, strip mining for coal is predicted by the Department of State Lands to reach as much as 375 acres during the current year. Although this acreage is presently small, it has the potential for great growth.

The disturbance of coal mined lands represents only a portion of the total coal related rehabilitation problem. The greatest land disturbance will be caused by the extensive utility corridors essential for mining. Each mine site requires a road system, railroad and powerline. If we do not soon design a district mining plan incorporating parameters of space and time, then we will have chaos. Only by district sequential mining can one set of utilities, one railroad, one road system, one community, serve many mines over a long span of time such as one or two centuries. Only by promoting the district concept can we have realistic rehabilitation of mined lands, elimination of temporary haphazard disection of the countryside and longevity to reduce the socio-economic impact concerning service communities.

And now for a few projections: We in Montana are dependent on Canada for natural gas. It has been announced by the Canadian Government, that gas exports may be terminated within five years. This means to me that Montana will in the near future have to switch to coal for heat, either directly or indirectly. This means increased mining and reclamation.

What is much more alarming is the fact that our country is rapidly changing. We are presently importing 80 percent of our natural resources from undeveloped countries at increasing rates. In the future the United States must become more self-sufficient and produce 80 percent of its natural resource needs, especially critical minerals.

There is a wide choice of where we may mine coal; critical minerals are a different story. The "Treasure State of Montana" and the "Gem State of Idaho" suggest that critical mineral mining will likely occur in major portions within our boundaries. Current feverish activity in the mineralized areas suggest the time interval may be short. Obviously low grade ores will be involved thus indicating open pit as well as underground mining may be common. Reclamation responsibilities will be immense.

Concentration of low grade ores and refining of metals will require enormous amounts of energy from coal, either directly or indirectly, again increasing our obligations concerning reclamation of the hardrock areas of the western portions of the state as well as the coal region of the east.

The total reclamation needs of the present are staggering. Those of the future are inconceivable.

MRS. DOROTHY BRADLEY, CHAIRMAN
and MEMBERS OF THE COMMITTEE:

MY NAME IS ALTEN F. GRANDT, I AM DIRECTOR OF THE LAND USE AND RECLAMATION DEPARTMENT OF PEABODY COAL COMPANY. I WOULD LIKE TO EXTEND MY GRATITUDE TO THIS COMMITTEE FOR THE OPPORTUNITY OF APPEARING AND PRESENTING MY COMMENTS.

PEABODY COAL COMPANY OPERATES ONE MINE IN MONTANA, THAT BEING OUR BIG SKY MINE LOCATED AT COLSTRIP IN ROSEBUD COUNTY. WE ARE OPERATING UNDER STATE LANDS DEPARTMENT PERMIT NO. 73-0004.

BIG SKY MINE, LAST YEAR, PRODUCED SOME 2.2 MILLION TONS OF COAL AND EMPLOYED 68 PEOPLE, OF WHICH 59 WERE RECRUITED LOCALLY. THIS COAL WAS HANDLED BY UNIT TRAIN AND SHIPPED TO COHASSET, MINNESOTA.

THE MINE PAYROLL FOR 1974 AMOUNTED TO SOME $751,000 AND GOODS AND SERVICES PURCHASED FOR THAT FACILITY REACHED $722,000. TAXES GENERATED AND PAID IN 1974 TO THE STATE AND COUNTY JURISDICTIONS,AS A RESULT OF OUR BIG SKY OPERATION, AMOUNTED TO 1.3 MILLION DOLLARS.

PEABODY COAL COMPANY IS CONCERNED ABOUT THE EFFECTIVE RECLAMATION OF ALL ITS SURFACE MINING OPERATIONS. AS A RESULT, EARLY IN 1969, PEABODY COAL COMPANY CONTACTED THE MONTANA STATE UNIVERSITY TO CONDUCT RESEARCH AT THE BIG SKY MINE. FOR EXAMPLE, AMONG THE SUBJECTS INCLUDED IN 1969 WAS A STUDY OF SURFACE WATER RUNOFF, AND BY A SERIES OF WELLS TO DETERMINE SOME HYDROLOGIC EFFECTS OF MINING ON ADJACENT STRATA. IN ADDITION, PEABODY HAS ENTERED INTO A CONTRACT WITH THE MONTANA BUREAU OF MINES AND GEOLOGY "TO GATHER AND INTERPRET BASE LINE HYDROLOGIC DATA LEADING TO A FIRM UNDERSTANDING OF THE LOCAL HYDROLOGIC SYSTEM".

IN 1971 THE UNIVERSITY OF MONTANA STATEWIDE ARCHAEOLOGICAL SURVEY, THROUGH THE UNIVERSITY OF MONTANA FOUNDATION, WAS CONTRACTED TO CONDUCT AN ARCHAEOLOGICAL SURVEY OF THE BIG SKY MINE AREA.

THE MONTANA STRIP MINING AND RECLAMATION ACT, EFFECTIVE MARCH, 1973, IS A

COMPLICATED ACT REQUIRING THE APPLICANT TO SUPPLY INFORMATION ON A VARIETY OF SUBJECTS. MUCH OF THE INFORMATION REQUIRED WAS NOT IMMEDIATELY AVAILABLE AND REQUIRED CONSIDERABLE TIME AND EFFORT TO ACCUMULATE. CONSULTANTS FROM MONTANA WERE HIRED TO GET MUCH OF THIS INFORMATION.

WE ARE PROUD OF THE RESULTS OF OUR RECLAMATION EFFORTS AT BIG SKY. IT HAS TAKEN CONSIDERABLE EFFORT TO ACCOMPLISH THE WORK. FOR EXAMPLE, IN 1974, 6,198 HOURS OF D-8 DOZER TIME; 2,077 HOURS OF D-9 DOZER TIME; 940 HOURS OF SCRAPER TIME; AND 562 HOURS OF DRAGLINE TIME WERE USED TO SALVAGE TOPSOIL AND GRADE 89 ACRES OF THE MINED AREA. IN ADDITION, 213 HOURS OF END LOADER AND TRUCK HOURS WERE USED TO SALVAGE TOPSOIL.

WITH REFERENCE TO THE FORMAT SECTION II - B-2 POSSIBLE NEEDED AMENDMENTS, PLEASE REFER TO SECTION 12 (PAGE 10 OF SENATE BILL NO. 94) WHICH STATES THAT THE OPERATOR SHALL "PROVIDE A SUITABLE PERMANENT DIVERSE VEGETATIVE COVER..."

(1) PEABODY COAL COMPANY IS OF THE FIRM OPINION THAT WHEAT FOR FOOD CAN BE PRODUCED ON SOME AREAS OF THE MINED LANDS AFTER GRADING AND TOPSOILING. UNDER THE PRESENT INTERPRETATION THIS CANNOT BE DONE.

(2) PEABODY COAL COMPANY IS OF THE FIRM OPINION THAT ALFALFA CAN BE PRODUCED FOR HAY OR SEED ON SOME AREAS OF THE MINED LANDS. THIS TOO IS A HIGHER USE OF MINED LANDS THAN RANGE PRODUCTION. UNDER THE PRESENT INTERPRETATION THIS CANNOT BE DONE.

(3) LEGUMES SUCH AS ALFALFA AND SWEET CLOVER ARE EXCELLENT SOIL BUILDERS, ESPECIALLY BY ADDING NITROGEN FROM THE AIR. RATHER THAN USING NITROGEN FERTILIZER PEABODY COAL COMPANY RECOMMENDS HIGHER RATES OF THESE SPECIES IN THE RANGE SPECIES MIXTURE.

FORMAT SECTION II - B-3 ADMINISTRATION OF THE STATUTE:

THE "LEARNING PROCESS" BY BOTH OPERATOR AND THE ENFORCING AGENCY OF A COMPLEX ACT TAKES TIME. SINCE 1969 THE ENFORCEMENT OF THE THREE RECLAMATION LAWS HAVE BEEN IN THREE DIFFERENT DEPARTMENTS. THE PRESENT LAW IS ENFORCED BY THE DEPARTMENT OF STATE LANDS.

PEABODY COAL COMPANY URGES THAT THE ADMINISTRATION OF THIS ACT REMAIN UNCHANGED. PEABODY WOULD ALSO RECOMMEND THE FOLLOWING CHANGE IN ENFORCEMENT PRACTICE: THAT THE INSPECTING OFFICER BE REQUIRED TO WRITE A REPORT OF EACH INSPECTION AND DELIVER A COPY TO THE MINE SUPERINTENDENT AT THE MINE OFFICE BEFORE LEAVING THE PREMISES.

Maudlow, MT
April 1, 1975

Rep. Dorothy Bradley
MT House of Representatives
Helena, MT

Dear Ms. Bradley:

Unfortunately I cannot attend the Strip Mining and Reclamation Act hearing. I appreciate the invitation for I'm very interested in the function and administration of this Act. I have conducted surface mined land reclamation research on a number of sites in Montana since 1971, for the Montana Agricultural Experiment Station. I also teach a graduate course in land reclamation at Montana State University, during which the Act and its administration are evaluated and discussed quite thoroughly. Since I cannot deliver my comments in person, may I do so via this letter?

In addressing the subject of progress in reclamation of western mined lands; it cannot be disputed that successful reclamation under the terms of the Strip Mining and Reclamation Act has not been demonstrated at any site in Montana. I do not anticipate the existence of such reclaimed lands for at least 4-5 years. The current state of the art does not preclude successful reclamation at one or two mining sites in Montana, but the preliminary stages of real reclamation under the Act have yet to be truly implemented, with the possible exception of the Rosebud Mine at Colstrip. Where suitable seed mixtures have been seeded properly, several years must pass before the success of the reclamation may be judged. Judging the true or final success of the reclamation will require 10 or more years.

Reclamation research on actual mine spoils began only a few short years ago, but good progress has been made at one of the mines. Research funding has been very limited and all of the studies required to perfect the best reclamation technology and answer the most important ecological questions have yet to be initiated. Research studies already completed have provided good basic information. Many of these studies must be repeated or extended to assure their validity under varying environmental conditions and at different mine sites where reclamation problems may differ drastically. Without further and repeated experimentation, administration of the Act is necessarily severely restricted.

Some of the critical research topics requiring study are listed below:

1. Competition among native and introduced plant species on mined lands.
2. Necessity for long-term ferfilizer application.
3. Effects of grazing and browsing on reclaimed lands.
4. Development of functioning soil systems on reclaimed lands.
5. Nature and rate of plant succession on lands being reclaimed.
6. Stability of artificial plant communities on reclaimed lands.
7. Interpretation and significance of overburden analysis data.

It is also obvious individual mining sites will have particular critical research problems, as Decker's alkaline overburden. And if techniques successful at Colstrip are obviously not successful at Decker, will they be successful at Circle? Until reclamation research is adequately funded and conducted at a variety of Montana sites for sufficient periods to be useable, reclamation as required by the Montana Strip Mining and Reclamation Act will simply not occur other than by chance.

I find little fault with the adequacy and applicability of existing provisions and rules of the Act, provided they are applied with reason and discretion required by the wide variety of mining conditions encountered in Montana. It may be argued that there has been a tendency to over-regulate reclamation. But considering existing capabilities of most mining companies to conduct reclamation, any existing over-regulation is harmless.

The regulations are comprehensive in terms of preplanning and reclamation implementation. Justly so, for the State must ensure that data and information are not only available to the mining companies for reclamation purposes, but to the general public. I doubt that there will ever be an instance of too much data being available where reclamation is concerned.

In summary, I have a great deal of confidence in the intent and specificity of the Montana Strip Mining and Reclamation Act of 1973. Rules and regulations pursuant to the Act are comprehensive and justified when administered with foresight and responsibility, as I believe they presently are. Surely there are numerous changes in wording and, occasionally, in intent necessary to make the statute perform to the degree intended and to ensure good reclamation. And care must be taken to avoid unfair and unnecessary burden to the industry involved.

I appreciate this opportunity to detail these comments to you.

Sincerely,

Brian Sindelar

Brian W. Sindelar

Department of Health and Environmental Sciences
STATE OF MONTANA HELENA, MONTANA 59601
John S. Anderson M.D.
DIRECTOR

April 9, 1975

Representative Jim Moore
House of Representatives
Capitol Building
Helena, Montana 59601

Dear Representative Moore:

In the House Natural Resources Committee hearing on April 4, you asked the question if any coal companies in Montana had been found to be in violation of Montana's water quality regulations and had been subject to an enforcement action by the Water Quality Bureau. I replied that to my knowledge, no water quality violations had occurred and there had been no enforcement actions taken against coal companies. I have subsequently checked with the Bureau enforcement section and this information is correct. I have also checked with our permit section and determined that no coal companies have had violations of their wastewater discharge permits. Due to insufficient funding, our monitoring of waste discharges and water quality in streams in the area is limited. We compliance monitor these discharges annually and self-monitoring is done monthly.

I apologize for not having the information available to you at the hearing. Please call me if you would like any additional information on this situation or any other aspect of water quality in Montana.

Yours truly,

M. K. Botz, P.E.
Water Quality Bureau
Environmental Sciences Division

MKB:mg

cc: Dorothy Bradley

WESTMORELAND RESOURCES
2705 Montana Avenue, Post Office Box 1883, Billings, Montana 59103 (406) 248-7803

COMMENTS OF WESTMORELAND RESOURCES
BEFORE THE HOUSE NATURAL RESOURCES COMMITTEE
April 4, 1975

The following comments focus on The Montana Strip Mining and Reclamation Act.

1. Adequacy and applicability of existing provisions and rules:

   a) Annual Permit: The requirements of the Act relating to annual applications and annual permits impose, we submit, excessive burdens on the Department of State Lands and the coal producers. It is our belief that the state could alleviate some of the burden by converting to a two or three year permit without sacrificing appreciable control.

      The application materials that must be submitted each year under the present system are in many respects duplicative from one year to the next. Submission of an application every two or three years would eliminate much of this duplication and the time required of the Department to review it each year. It seems to us that the costs to the state of annual review are not commensurate with the benefits.

the department would have another 240 days. Under this condition the department would have 660 days to notify the applicant if the plan submitted is acceptable.

We believe that this sort of problem may have resulted in delay with respect to issuance of new permits to existing operators. However, we do not mean to imply flagrant abuse. We urge that the department commit itself, or be required, to give notice of application deficiencies within 90 days after which it should have a suitable amount of time to review the plan.

2. Possible Needed Amendments: Earlier comments with respect to annual permits and the application review period reflected possible changes in the Act.

3. Administration of the statute: We believe that the Montana Strip Mining and Reclamation Act is fundamentally a good law with sound purpose. It certainly provides insurance to the people of the state that mining will be conducted in an acceptable manner.

   Operators and the Department of State Lands have been learning to live with the Act. As the

b) Application Review Period: Section 10 of the Act provides that the Department shall have 120 days after receipt of a complete application to notify the applicant if it is or is not acceptable. The department may extend the 120 days by an additional 120 days.

Subsection 6 (2) (1) of the Act requires that an application shall state"...such other or further information as the department may require." So long as the department may request additional information under this subsection anytime within 240 days from submission the applicant can not know for 240 days whether or not his application is complete. If the department notifies an applicant of its desire for more information not specifically covered in the Act or Rules and Regulations on the 240th day, even at that late date the application could be deemed incomplete. If, for example, the additional information was requested on the 240th day and required 180 days to generate then the application could have been deemed complete on the 420th day from original submission after which

We believe that a "warning" system should be instituted for those cases where there has been substantial compliance or where the failure to comply has not significantly violated the purposes of the Act. Violations under such a system would be assessed when warnings had not been heeded or where noncompliance was significant.

b) Although we have not contested a selectively denied area pursuant to Section 9 (2) of the Act, we disagree with the department's decision. The specific area denied involves a wooded gully which is far from unique. This denial represents a rather stringent application of the intent of the Act.

c) The Act extends nearly ultimate authority over a mining operation to the department. The department can deny mining, delay permit issuance, and shutdown mining for reasons that have not been well defined in the Act. We have not encountered any significant abuses of power, but we felt it important that the opportunitites for abuse be noted.

Respectfully submitted,

Ralph E. Moore

Ralph E. Moore
Vice President - Operations
Westmoreland Resources

operators and department gain more experience with it, we believe it will become increasingly effective, but not without disagreement between those regulating and those being regulated. Along these lines we have several specific comments:

a) A thorough review of the Act, its regulations and administration of the Act suggests that it is virtually impossible for an operator to go through a year without a violation. The degree of control is sufficiently precise as to allow no room for error.

In assessing violations the department does not seem to have made allowance for substantial compliance except perhaps in the determination of the amount of related fines. Of course the amount of a fine is important to us, but it is also very important whether or not we have a violation on our record. The public guages our performance in part on the basis of the number of violations more than the amount of the fines. It does not realize that the degree of control is so precise as to make it virtually impossible for an operator to avoid violations.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SEAM
145 Grand Avenue
Billings, Montana 59102

1560
April 9, 1975

Ms. Dorothy Bradley, Chairman
House Natural Resources Committee
State Capitol Building
Room 436
Helena, MT 59601

Dear Ms. Bradley:

This letter is in response to a telephone call on April 3, 1975, from Ms. Susan Roy of your office wherein she suggested that information about the Forest Service Surface Environment and Mining Program (SEAM) may be of some value to the deliberations of your committee. The information given below is general and is intended to give an overview of (1) what the SEAM Program is, (2) what it has underway, (3) what it has underway specifically in the State of Montana, and (4) what it has underway in other areas that has application in the State of Montana. It is my understanding that questions concerning specific studies and problems are being directed to those scientists and others dealing directly on site with them and specifics of this nature will be beyond the information given here.

Mining and Environment Problems

As a result of many factors, significant pressures are being applied to increase mineral production in the United States. Recent energy problems focus this expansion on minerals such as coal; however, other critical problems, like the world food situation, highlight the importance of increased phosphate production for fertilizer. Counter-forces to this growth in mineral extraction are generated by the ample history of the negative side effects of mining and the national concern for the environment.

The SEAM Program

Any mineral development involves the responsibility of many state and federal agencies. No single agency has the authority or knowledge to both determine the mineral development needed on a national level and carry it through all phases, culminating in successful reclamation.

The responsibility of the Forest Service, to which the SEAM Program is attached, is for management of surface resources on over 187 million acres of National Forests and Grasslands, much of which is underlain with coal, phosphate, and other minerals. Removing these, particularly by surface mining, would have an impact on surface resources such as timber, wildlife, livestock forage, recreation, and esthetics.

With the increased need to direct additional attention toward mineral related problems also came the need for cooperation and coordination of Forest Service efforts with others in mining and reclamation. To meet this responsibility, the SEAM Program was established in 1973. The Program has been established to provide and apply technology designed to help maintain environmental quality consistent with supplying minerals for national needs. If environmental problems are not solved, other resource values may be unnecessarily damaged or lost, needed mining projects may be unnecessarily abandoned or slowed down, and some positive side benefits of mining may be foregone.

The Program, as presently planned, will have a duration of five years and has four goals:

1. Determine impacts of mining.
2. Develop criteria and techniques to minimize the impacts.
3. Evaluate concepts, practices, or techniques in the field.
4. Develop recommendations and disseminate findings.

SEAM is an on-the-ground problem-solving program, which is planned to encompass the major mining regions of the nation, but is initially concentrated in the West because of intensive interest in new mineral development. Much of the SEAM Program work will be done through contracts and grants with non-governmental organizations, and also through cooperative agreements with other governmental agencies.

Currently, projects are being conducted in ten western states for the purpose of providing technical information and assistance to land managers and mining companies on the latest reclamation techniques. These projects are cooperative efforts involving ten universities, seven research work units, and three research stations, plus individual states, mining companies, and other federal agencies.

Since its formation, SEAM has aimed its efforts at establishment of model demonstration sites, reclamation research, data collection, production of plant materials, planning, and publication of accumulated reclamation knowledge.

Demonstration Sites

SEAM has four active reclamation demonstration projects, with more in the drawing board stage. The Navajo Mine at Four Corners, New Mexico, is being used to demonstrate the application of accumulated knowledge toward reshaping and revegetating mined lands in an arid climate.

Demonstrations on the Salmon National Forest in Idaho and on the Beartooth District of the Custer National Forest in Montana are intended to show spoils shaping and revegetation as well as the latest techniques in acid mine drainage control. Cooperators in these demonstrations include the states of Idaho and Montana, EPA, and the landowners.

At the Decker Mine in southeastern Montana, SEAM, the Forest Service Research Work Unit in Logan, Utah, and the mining company are establishing a demonstration site showing planting and revegetation methods for spoils with a high sodium content.

SEAM plans to establish a demonstration site on the Idaho phosphate area within the Caribou National Forest. This work will be conducted in cooperation with the State of Idaho, the Bureau of Land Management, Geological Survey, and the mining companies. SEAM already has a revegetation project underway on the area and is providing funds for the collection of other resource data needed to fully plan any future phosphate development.

An effort is also underway on the Ashland Division of the Custer National Forest where new approaches to planning and decision making are being used and will be displayed soon.

Reclamation Research

SEAM has 46 reclamation-related research projects currently being conducted either in-house through Forest Service Research Work Units or by cooperative agreement with various universities. Also included is an effort by the Agricultural Research Service Station at Mandan, North Dakota, which is conducting a SEAM funded study aimed at spoils reclamation, topsoil requirements and classification of overburden before mining in order that overburden placement during and after mining can be preplanned. The ARS is also conducting seven other reclamation studies which are partially funded by SEAM.

The following are some representative examples of projects being conducted through various Research Work Units in cooperation with universities, federal and state agencies and mining companies.

Rapid City, South Dakota RWU projects include:

A cooperative project with North Dakota State University to determine effects of airborne pollutants on plants and animals.

A project conducted in cooperation with the University of Wyoming and AMAX Coal Company to determine effects of surface mining of coal on shallow ground water aquifers in the eastern Powder River Basin of Wyoming.

An investigation of shrub and tree adaptation, and effects of surface mining on small mammal habitat at the Bell Ayre Mine near Gillette, Wyoming, being conducted in cooperation with the AMAX Coal Company.

Bozeman, Montana, Research Work Unit projects:

Cooperative projects with Montana State University to determine impacts on surface resources caused by different transportation systems used in mining, and an analysis of mechanical properties of overburden prior to mining in order to preplan the shaping of spoils for reclamation (this is a companion study to work being done by the Agricultural Research Service at Mandan, North Dakota).

A comparison of current methods used in prospecting and exploration operations to determine which are least detrimental to surface resources, being conducted in cooperation with the University of Idaho.

Logan, Utah, Research Work Unit projects:

Research on the reproduction biology of the plant genus Artemisia (sagebrush), an important reclamation genus in eastern Montana, being conducted in cooperation with Montana State University.

A cooperative project with Utah State University to develop plants tolerant to adverse conditions found in most spoils.

An evaluation of the effects of the rate and time of fertilizer application on mine spoil seedings, conducted in cooperation with Montana State University.

Albuquerque, New Mexico, projects:

A cooperative effort with New Mexico State University to investigate expected impacts of coal development on rural communities in northeastern New Mexico.

An analysis of the effects of mycorrhizae, fertilizer, organic additives, and water harvesting techniques on plant germination, being conducted at Raton, Gallup, and Farmington, New Mexico.

Development of guides for high altitude, dry, acid, granite soils, being developed in cooperation with the University of Arizona at the Sheldon Mine, Lynx Lake, Arizona.

As the SEAM Program expands, new projects will be established and results from completed projects will be applied to suitable situations in all areas of the country.

Plant Materials

Some of the plant materials needed in mined land reclamation are species that are not yet readily available from commercial sources. To prevent a bottleneck in the supply of these materials, operations have accelerated to three Soil Conservation Service Plant Materials Centers as well as the Forest Service nursery in Coeur d'Alene, Idaho. The Plant Materials Centers are: Los Lunas in New Mexico, Bridger in Montana, and Bismarck in North Dakota.

At the Coeur d'Alene Nursery, a method has been developed to speed the production of plant materials. By using containerized planting stock and modern nursery growing techniques, native plants can be made more readily available for reclamation work.

Planning and Data Collection

SEAM's major emphasis in planning has been on the development and refinement of tools, such as the computer, to make land use planning more efficient. SEAM and the Northern Region of the Forest Service in Missoula, Montana, have obtained automatic data handling equipment that substantially increases accuracy and speed of handling large amounts of information. With this equipment, surface and subsurface ownership data on much of western North Dakota and southeastern Montana have been automated by SEAM for use in planning efforts. In addition, automation of some minerals management data has been completed on the Custer National Forest which will make this data more readily available.

SEAM will soon be installing equipment that will provide visual displays of both graphic and tabular material, and which will also display topographic data, with vegetation features included, in three-dimensional perspective views.

Publications

As new information on reclamation becomes available through SEAM projects, it will be published and made available to land managers, mining companies, and the public. During 1974, the following publications were issued by SEAM:

> A paper by Paul Packer, Research Project Leader at the Forest Service Intermountain Forest and Range Experiment Station in Logan, Utah. The paper is entitled "Surface Rehabilitation Potentials and Limitations on the Northern Great Plains."
>
> A dissertation on aquatic classification by Dr. Bill Platts, member of the SEAM Program.
>
> A report on the revegetation research being conducted at the Decker Mine in eastern Montana by the Logan Research Work Unit.

During 1975, the following publications will be issued:

> A publication entitled "Anatomy of a Mine-From Prospect to Production" which provides land managers with a reference guide to help with all phases of the extraction process.
>
> A practical guide to revegetation providing land managers with knowledge of the current state-of-the-art in reclamation and revegetation.
>
> Interim reports will be forthcoming on several reclamation research projects.

From the research, demonstrations, planning, data collection, and all other areas of the SEAM Program, we hope to provide answers to many of the problems associated with mineral development. We know that in the past a high price was paid for ignoring the environmental and socioeconomic impacts of mining. If history has taught us any lesson, it is that wise decisions come only when there is adequate information to form them. SEAM's goal is to supply both the knowledge and the techniques needed to make solid land use planning decisions as well as solve existing problems related to mining and reclamation.

Montana Based Projects

The following brief explanation of the specific projects or studies underway in Montana also identifies the agency doing the work. Where "in-service" is used to identify the agency this means the work is being accomplished by a Forest Service Unit.

1. Cooperative agreement with Montana Fish & Game Commission for research on reproductive biology of genus Artemisia L. in eastern Montana. Sagebrush (Artemisia L.) is an important component of plant communities covering areas that may be subject to mining in the Northern Great Plains. Re-establishment of this plant on mined areas will be important especially to some wildlife species who depend on this plant for cover and forage. A better understanding of the requirements of this plant in reclamation efforts is the object of this study.

2. Effects of fertilizer rate and time of application on mine spoil rehabilitation seeding at Colstrip, Montana, with Montana State University. The use of fertilizers may help to insure the establishment of vegetation on a site after planting or seeding has been accomplished. Fertilizers may help reduce the risk in revegetation work which is associated with any harsh site whether or not it is mined. Quick and permanent cover reduces erosion hazard and other site deterioration factors which are at work on sites without vegetative cover.

3. A series of studies at the Decker Mine in southeastern Montana. Studies include determination of species adaptable to the site, effects on near-surface hydrology, effects of fertilizer and organic soil amendments on germination and establishment of vegetation, effects of revegetation on surface runoff and erosion, the use of irrigation as a means to insure germination and establishment of vegetation on mine spoils. In-service.

While much is known about the above questions on more typical revegetation sites, mine spoils in the western area need additional study. Through application of various revegetation approaches and studying results, a knowledge base can be developed which will provide administrators and the mining industry with a range of alternative treatments for which the results can be predicted with a high degree of certainty. This should be of value when considering whether or not to lease, lease stipulations, planning post-mining land use, etc.

4. A series of studies similar to those at Decker but located in the higher country near Cooke City, and in the Stillwater complex, Montana. These studies in the high country are for the purpose of determining the effects of fertilizer and organic soil amendments on germination and establishment of plants, effects of different revegetation techniques on root zone hydrology, and determining suitable species to use for revegetating high, fragile sites with short growing seasons. In-service.

While the high country in Montana receives ample moisture, revegetation of disturbed areas remains difficult. The short growing season (about six weeks) and thin, fragile surface soils coupled with current unavailability of native plant materials makes reclamation of disturbed areas a difficult challenge at present. These studies, located in the higher elevations, are aimed at finding out whether or not some of the problems can be solved.

5. Using photography as a means of assessing some aspects of revegetation success or failure. Normal plot techniques for assessment of revegetation efforts do not provide as complete a record of stand characteristics as is often desired. Moreover, standard techniques are slow, tedious, and costly. Photographic techniques would provide a permanent record of stand characteristics which the investigator can refer to at any time.

6. Determine the viability of selected species of native grasses, forbs and shrubs. University of Montana. There are gaps in what is known about re-establishing native plants in eastern Montana. This study will gather information on seed collection and handling, how to break seed dormancy, and how to produce seed and plants to make them available for revegetating mine spoils.

7. Analyze alternative transportation and earth placement systems applicable to mineral development in terms of relative impact on surface resources. Montana State University.

There are several alternative transport and earth placement systems which can be used in connection with mining. The selection of these systems must be based on the type of development, the particular operator and the economics of the situation. Equally important in initial planning is the selection of systems least disruptive to surface resources and environment. Land managers and other administrators need an assessment of the relative impact of the various available systems to assist them in their input to decisions about development and the form that it takes.

8. Trend surface analysis of Powder River Basin. In-service. A premining quantitative evaluation of topographic features in the active and anticipated coal and bentonite strip mining areas of the Northern Great Plains is needed which will provide some insights into basic questions including the following: (1) How closely should the topography be returned to the way it was before mining? (2) What will be the best drainage system for the area, and what are some of the alternatives? (3) What can we anticipate in terms of changes in surface and subsurface hydrology between disturbed and undisturbed lands?

Specific objectives are to: (1) Quantify selected topographic parameters on topographic maps. (2) Determine significant topographic distinctiveness or variations existing in the study area. (3) Determine the distribution of the topographic variables. (4) Determine the most meaningful topographic variables that are useful in describing the study area. (5) Associate topographic differences to geomorphological processes and derive geohydrologic implications related to disruption of topography.

9. Premining evaluation of overburden at coal surface mining areas in Powder River Basin. Analysis of overburden above coal--their composition and variability--is needed to formulate a basis for predicting overburden characteristics in the Powder River Basin. Such a predictive basis is fundamental in planning mining operations and in the most favorable sequencing of overburden material at reclamation areas.

Specific objectives are to: (1) Sample overburden material by drilling to top of coal bed. (2) Obtain radioactivity and electric log data in bore holes. (3) Distinguish lithologic types from surface to top of coal beds. (4) Determine physical, chemical, mineralogic, and geophysical characteristics. (5) Correlate geologically the bedding of overburden above coal. (6) Determine whether a predictable physical or chemical basis of overburden characteristic does exist in the anticipated coal mining areas.

10. Provide means to the SCS Plant Material Center at Bridger to accelerate the development of plant materials needed for reclamation on mined areas. In-service in cooperation with Soil Conservation Service.

Many of the species important in mined land reclamation are native species found on site. These species have not been economically attractive in the past to commercial seed growers and nurseries because there was no demand for them. Means must be found to produce quantities of materials sufficient to meet reclamation needs. This project is a step toward this. It should be noted that similar efforts are underway as a part of the SEAM Program at two other SCS plant material centers, one in Bismarck, North Dakota, and the other in Los Lunas, New Mexico.

11. Establish a reclamation demonstration project near Cooke City, Montana. EPA, Montana Fish and Game, and in-service. This cooperative project is an attempt to apply what is available now to an area which has been disturbed in years past through mining. Problem of high acid drainage, aesthetic damage, and surface erosion are present. The research efforts mentioned elsewhere in this report are complimentary to this effort and will "measure" results.

12. Demonstration of revegetation techniques at Decker Coal Mine in southeastern Montana. Decker Coal Company and in-service. The Decker research effort covers several possible choices of technique, treatment and seeding mixtures. Some of these choices have shown better results so far than others. The best treatments have been applied now on an approximately eight-acre demonstration site so that results can be observed further.

13. Gather socio-economic information necessary for planning efforts in the Birney-Decker area. Cooperative effort between Montana Energy Advisory Council, Bureau of Land Management, and Forest Service.

14. Archeological study of portions of the Ashland Ranger District, Custer National Forest. University of Montana.

15. Participate as a co-sponsor of a reclamation seminar with the Montana Academy of Sciences; States of Montana, Wyoming, North Dakota; and the Bureau of Land Management.

Projects not based within the State which have application in Montana.

1. SEAM is cooperating with ARS and funding some studies at Mandan, North Dakota, on characterization of physical and chemical properties of spoils. It is desirable to find out as much as usefully possible about overburden and soils through the use of core drilling before mining begins. However, little is known concerning methods of drilling on chemical content, sample collection, and laboratory analysis of cores and how overburden properties relate to plant growth and water quality. As methods of overburden assessment are developed they will be useful in planning mining operations, proper placement of spoil for effective reclamation and protection of the water resources.

2. ARS is also studying reclamation of strip-mined land as affected by depth of surface soil and subsoil returned. There has been some controversy as to whether or not soil should be replaced on mined areas and to what depth. This study considers the effects of spreading from zero to eight feet of subsoil and zero to two feet of topsoil either mixed with or on top of the subsoil on plant growth. Various agronomic, exotic, and native species witll be planted to determine what topsoil requirements are necessary for establishment and maintenance of each species.

3. Other studies being conducted by ARS include investigation of the use of mulches, fertilizers, gypsun and sulfur as amendments to improve highly sodic spoils as plant growth media.

4. Application of modern nursery growing techniques to plant species which have value in mined-land reclamation. Nursery techniques have been highly developed for producing trees and shrubs which have high economic value for timber or as ornamentals. These same techniques can be applied to species which are needed in reclamation efforts. An effort to do this is taking place at the Forest Service nursery at Coeur d'Alene, Idaho. The attached pamphlet gives further details on this.

I should point out that all site specific studies are being conducted with the cooperation, to one degree or another, of the mining company or landowner on the specific area. This cooperation ranges from furnishing the site to furnishing some materials and labor. This cooperation is mandatory because the company or landowner must make provision for this added use of the site and modify his plans accordingly. The cooperation extended to our effort has been exceptional.

I apologize for the length of this report but I have tried to cover those elements of the Forest Service SEAM Program that I believe would be of interest to your committee. I hope it will be of some value.

Sincerely,

M Hassell
M. J. HASSELL
Program Manager